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DEPARTMENT OF ADMINISTRATION

LORIDA ENVIRONMENTAL
LAND & WATER MANAGEMENT ACT
CHAPTER 380, FLORIDA STATUTES

DIVISION OF STATE PLANNING

FINAL REPORT AND RECOMMENDATIONS FOR THE PROPOSED FLORIDA KEYS AREA OF CRITICAL STATE CONCERN

URBAN RESEARCH LAB
UNIVERSITY OF FLORIDA

BUREAU OF LAND AND WATER MANAGEMENT

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SECOND EDITION NOTE.

On April 15, 1975 the Governor and the Florida Cabinet, sitting as the Administration Commission, voted to designate the Florida Keys as an Area of Critical State Concern. The boundaries and principles for guiding development are set forth in Chapter 22F-8, Florida Administrative Code (appended).

FINAL REPORT AND RECOMMENDATIONS FOR THE PROPOSED FLORIDA KEYS AREA OF CRITICAL STATE CONCERN

December, 1974

TO THE

STATE OF FLORIDA ADMINISTRATION COMMISSION

BY THE

DEPARTMENT OF ADMINISTRATION

DIVISION OF STATE PLANNING

BUREAU OF LAND AND WATER MANAGEMENT

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"I doubt that anyone can travel the length of the Florida Keys without having communicated to his mind a sense of the uniqueness of this land of sky and water and scattered mangrove-covered islands. The atmosphere of the Keys is strongly and peculiarly their own. It may be that here, more than in most places, remembrance of the past and intimations of the future are linked with present reality. In bare and jaggedly corroded rock, sculptured with the patterns of the corals, there is the desolation of a dead past. In the multicolored sea gardens seen from a boat as one drifts above them, there is a tropical lushness and mystery, a throbbing sense of the pressure of life; in coral reef and mangrove swamp there are the dimly seen foreshadowings of the future.

This world of the Keys has no counterpart elsewhere in the United States, and indeed few coasts of the earth are like it."

Rachel Carson, 1955
The Edge of the Sea

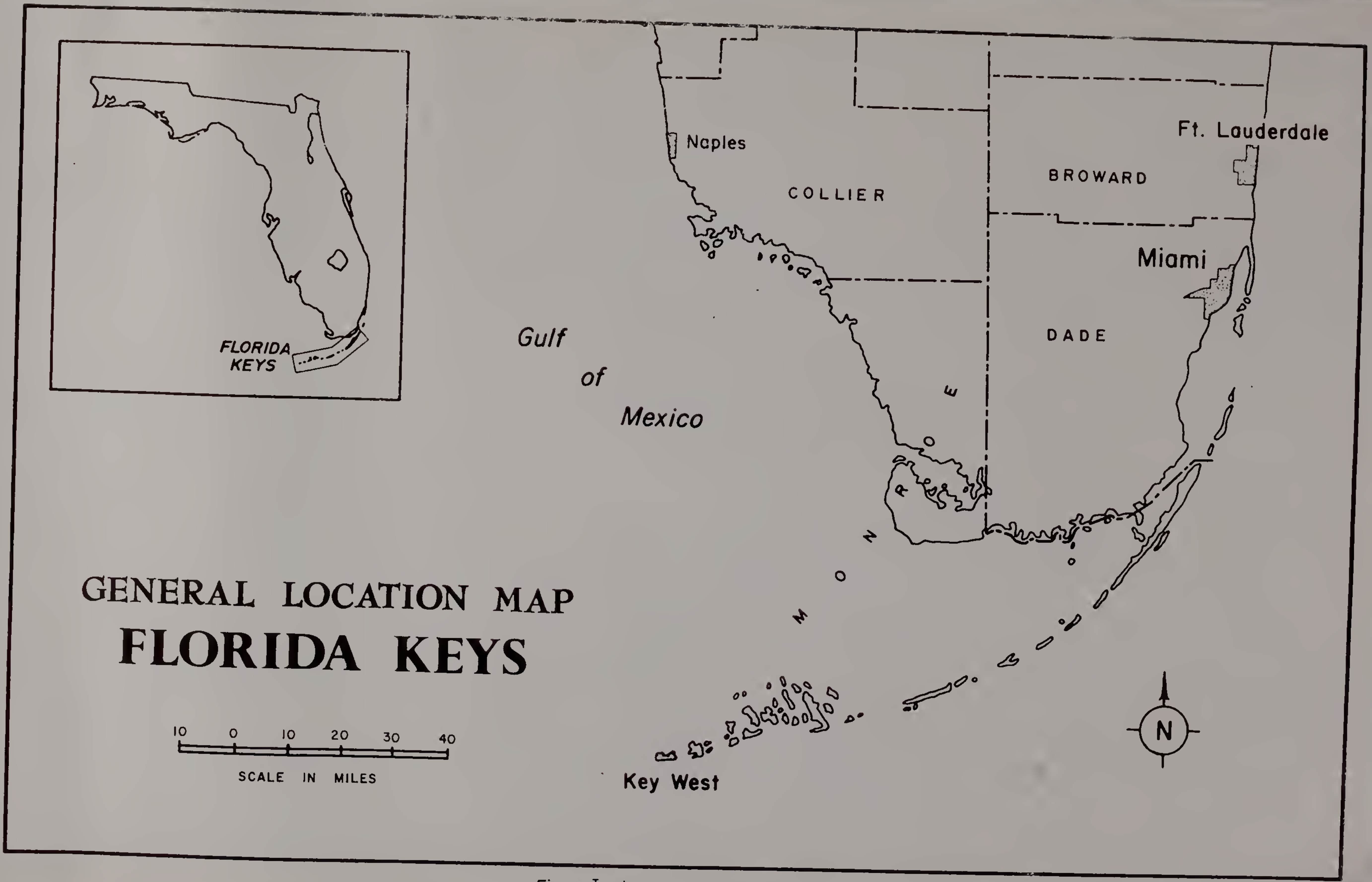

FLORIDA
KEYS
Naples
COLLIER
BROWARD
Ft. Lauderdale
Miami
DADE
Gulf
of
Mexico
MONROE
Key West
N
GENERAL LOCATION MAP
FLORIDA KEYS
10 0 10 20 30 40
SCALE IN MILES

Figure I.-1

SECTION I

A. THE FLORIDA KEYS, A NATIONAL RESOURCE

The word "Key"is the Americanization of the Spanish word "cayo", meaning a small, low-lying island. Of the 97 small low-lying islands in the chain, 35 are connected with the mainland by road. This ease of accessibility to the majority of American families clearly differentiates the Keys from America's other archipelagos, the Hawaiian Islands and the Aluetian chain in Alaska. No other place in the Nation combines such accessibility with the grandeur of the tropics and the cosmopolitan, yet uniquely American heritage of Key West.

The Keys, in Monroe County, are the home of many rare animal species and plant communities, a few of which are native only to this island chain. The many beautiful parks of the Florida Keys are windows to these natural riches. Sport fishermen, who favor both deep sea and near shore, both rod and spear, are attracted to the Keys by the ease of access to four major water bodies: the Atlantic, the Caribbean, the Gulf of Mexico and Florida Bay.

The Keys are more, however, than just tropical wildlife, sun, and sea. They are also a 130 mile long urban area of islands, bridges, homes and commerce, joined together and to the mainland by a remarkable accomplishment, the Overseas Highway. The highway, and its predecessor system, the Overseas Railway stands as a monument to the American spirit of risk and tenacity. Henry Flagler, one of Florida's great pioneers, spent over $50 million to build the railway; hundreds of other persons gave their lives or their health in its construction. When a major portion of the track was destroyed by a hurricane in September, 1935, officials of the State of Florida and the federal government decided to re-establish the railway as a roadway. Significant portions were opened in only three years and it was virtually complete in less than a decade. Shortly after, the Overseas Highway linked Key West, the southern most point in the continental United States to the northern most point of Maine on the Canadian Border through the U.S. #1 highway system. This link brought tourists, residents and even Presidents to the Keys to enjoy the advantages of this tropical paradise.

No paradise, however, is without problems. The Florida Keys are now beginning to suffer, at least partially, from their own success. Rapid immigration and development over the last decade, especially in the Middle and Upper Keys, has outstripped the County's financial and administrative ability to provide urban services and protect the beautiful and economically valuable environment of the Keys. The costs of providing urban services in any American city are very high; the costs of providing such services to a 130 mile long, linear city are truly staggering. The decay of existing service systems in the Keys and the need for new services, also went unnoticed for too long at the state level. In the last four years both county and state have set forth emergency measures to deal with the problems of water supply, transportation, and waste disposal to provide the urban services and protect the environment.

These measures, however, have been isolated from each other and from the economy of the Keys. The sections that follow examine the environment, the urban structure, and the economy of the Keys and their interrelationships and propose comprehensive and integrated approaches to the protection and development of the Florida Keys and its essential systems.

DETAILED MAP OF THE FLORIDA KEYS

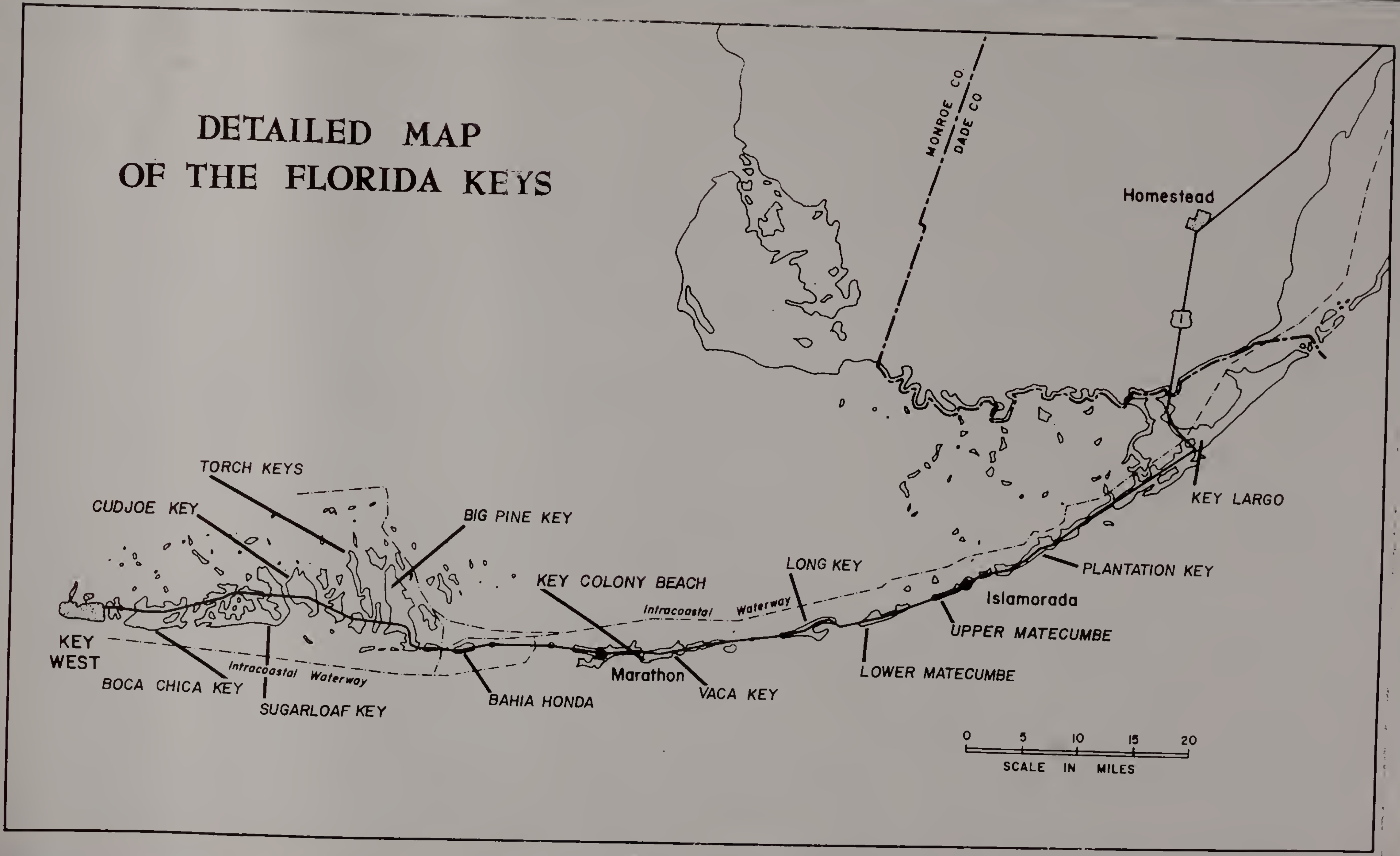
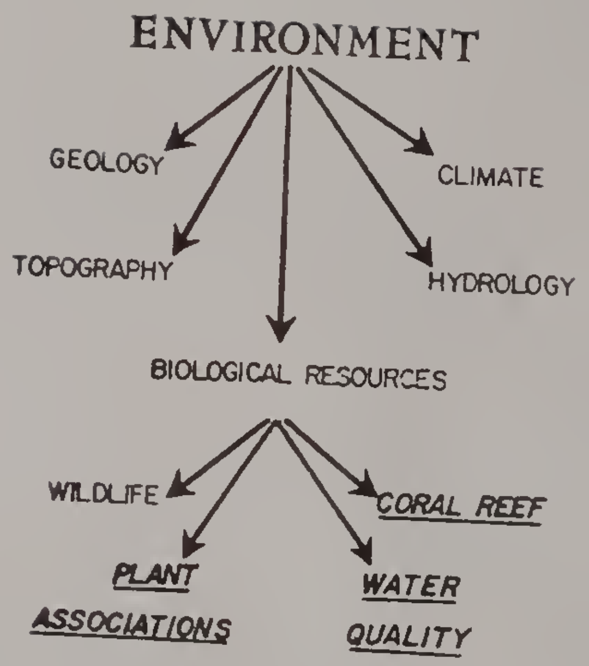


Figure I. - 2

SECTION I

B. GENERAL DESCRIPTION OF THE FLORIDA KEYS SYSTEM

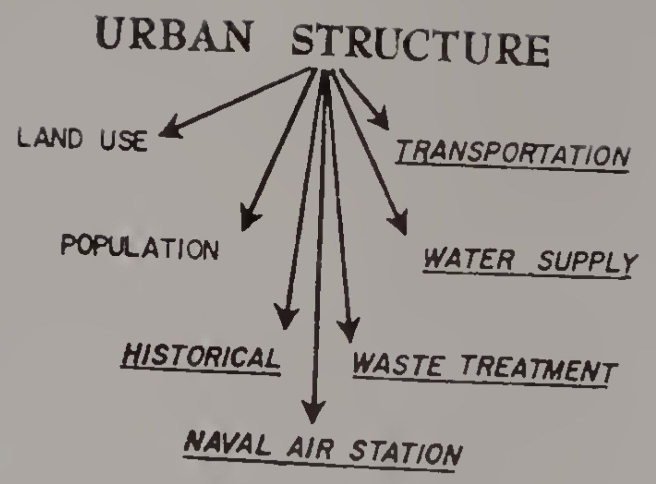
INTRODUCTION

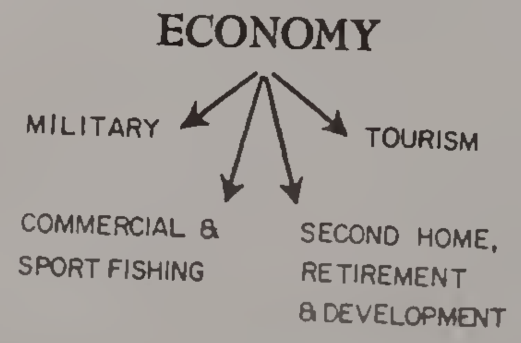


The Florida Keys is a system of natural and man-made resources and activities located in one of Florida's most beautiful settings. The complex interrelationship of these activities and elements is both the Keys' strength and its weakness. The natural resources found here are extremely fragile; many of the man-made resources and activities are dependent upon external forces over which the Keys and its people can exert little or no control.

The complexity of the Keys requires an examination of its component parts in order to more fully appreciate its functions as a total, integrated system. The major components which constitute the Keys system are Environment, Urban Structure, and Economy. These three components and their associated elements establish an overview of the total system and provide a structural framework for the inclusion of resources and investments of statewide and regional importance, which will be discussed in greater detail.

The elements containing resources and investments of statewide or regional importance are indicated by bold lettering and underlining in the graphics on this page. These resources and investments include: Natural resources - water quality, mangrove and coral reef communities; public investments - Overseas Highway, water supply, waste treatment and Key West Naval Air Station; historical resources - Key West Historical Preservation District.



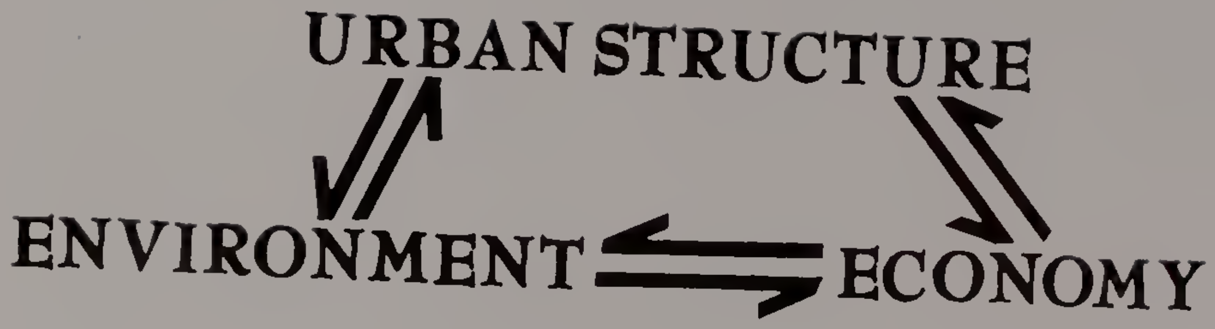

ECONOMY
MILITARY
TOURISM
COMMERCIAL & SPORT FISHING
SECOND HOME, RETIREMENT & DEVELOPMENT

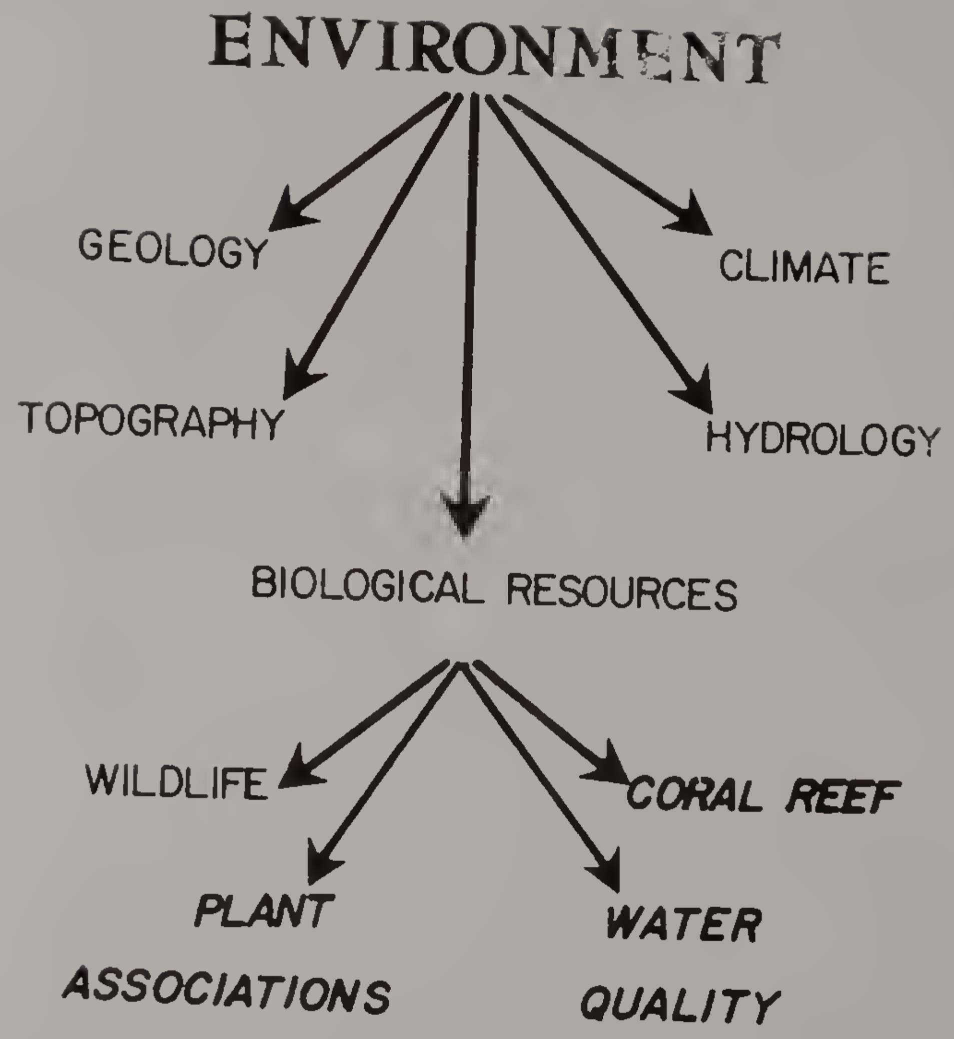
INTERRELATIONSHIPS BETWEEN THE ENVIRONMENT, URBAN STRUCTURE AND ECONOMY

The Environment, Urban Structure and Economy of the Keys are closely linked by a web of relationships. These components interact so as to benefit as well as limit the functions of the total system. Consequently, the destruction or alteration of a beneficial function will invariably result in some negative or limiting impact elsewhere in the system. For example, improper treatment and disposal of solid or liquid wastes will adversely affect water quality, which in turn can result in a reduction of commercial and sport fishing and tourism as a whole. Similarly, activities such as dredging and filling make low-lying lands more suitable for development, but this process destroys mangroves and marine grass communities, resulting in reduced biological productivity and instability of the shoreline region.

The reverse of this cycle is also true. The maintenance or improvement of a beneficial function will enhance the entire system. Improvements in the fresh water supply facilities would improve the distribution of potable water to existing and future dwelling units. The reconstruction of the deteriorated bridges, for example, would lead to the removal of weight limitations, and thereby allow greater, more efficient movement of goods and services throughout the Keys.

These examples indicate the difficulty of maintaining an intricate set of relationships. However, it is the premise of this report that if the Environment, Urban Structure and Economy of the Florida Keys can be balanced and the basic interdependencies protected, the system can be maintained and prepared to accept long-term growth and diversification.





ENVIRONMENT

The natural and physical elements of the Florida Keys' environment combine to form a uniquely beautiful and biologically productive region. These elements provide such things as unique wildlife, large sport and commercial fish populations, clear blue waters, and pleasant weather conditions. These factors, in turn, provide a basis for, limit, or enhance various elements of the economic base and urban structure.

Geology

Two limestone formations comprise the geologic base of the Florida Keys (see Figure I-3). The Upper Keys are actually ancient coral reefs which, following sea level recession, emerged and developed as islands. These coral outcrops, which were created during submerged periods 27,000 years ago, are known as Key Largo Limestone. The limestone base of the Lower Keys, Big Pine Key through Key West was formed 100,000 years ago and is primarily composed of Miami oolite. Overlying the limestone formations are layers of organic peat and sand collected by the pioneering and stabilizing actions of mangrove forests whose intricate root systems trap and hold sand and organic matter. The emergent limestone formations and mangrove areas combine to form 97 islands that are 10 acres or larger. The total land area in the Keys is approximately 70,000 acres.

These limestone formations of the Florida Keys are often porous and result in active water exchange between the groundwater aquifer and sea water. Thus, the majority of the Keys is underlain by a shallow, brackish to saline aquifer, largely unsuitable for use as a potable water supply without extensive treatment. This condition of the aquifer water underlying the Keys has necessitated obtaining water from other sources. The majority of the Keys' water supply is piped in from the mainland. A desalinization plant and a private reverse osmosis plant supplement the pipeline supply. These formations also severely limit solid and liquid waste disposal options. Due to the porosity and the high water table of the soil and substrata, many waste disposal options normally used elsewhere pose serious water quality problems in the Keys.

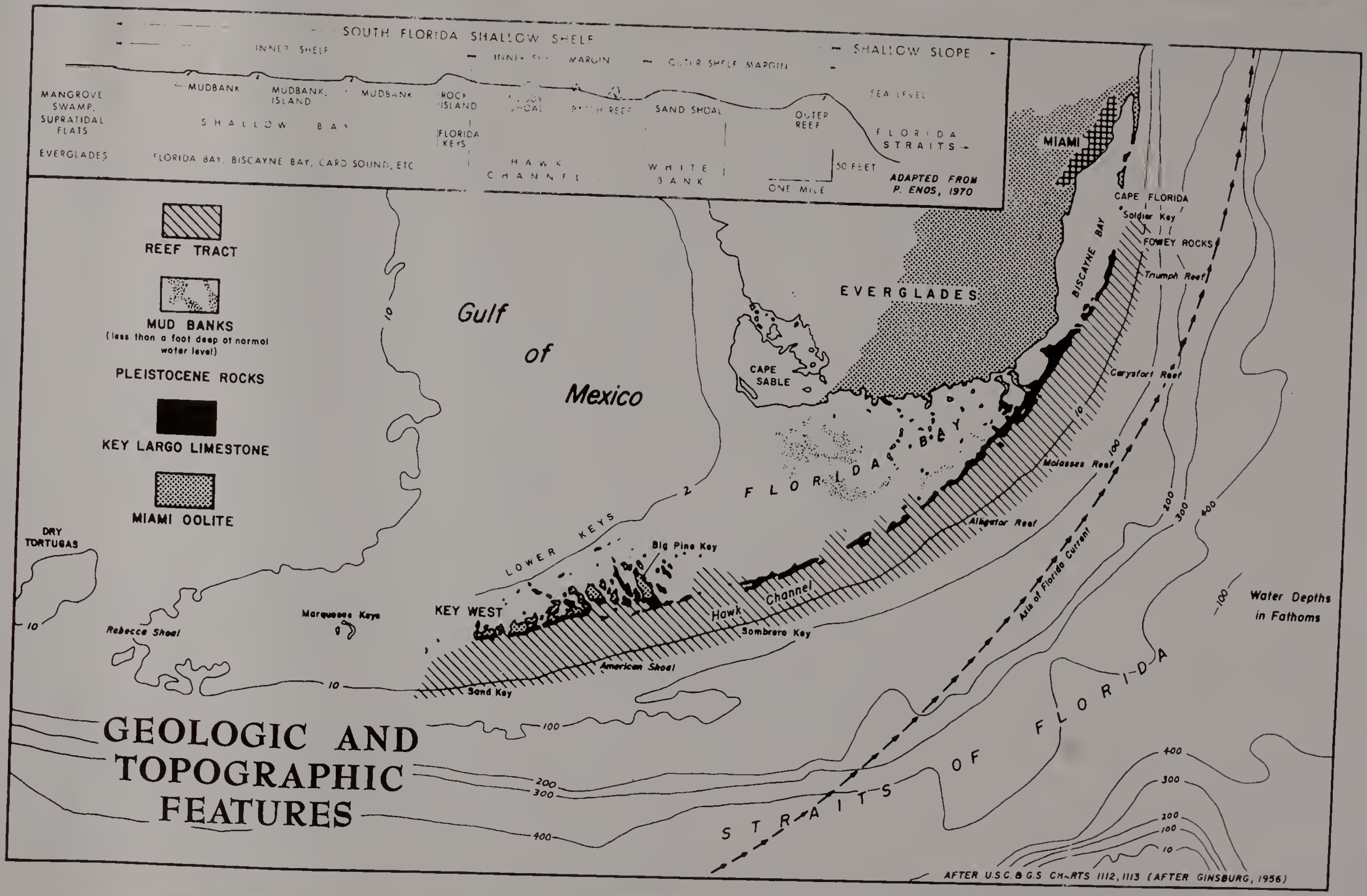

SOUTH FLORIDA SHALLOW SHELF
INNER SHELF
INNER SHELF MARGIN
OUTER SHELF MARGIN
SHALLOW SLOPE
SEA LEVEL
MANGROVE SWAMP, SUPRATIDAL FLATS
EVERGLADES
MUDBANK
MUDBANK, ISLAND
MUDBANK
SHALLOW BAY
FLORIDA BAY, BISCAYNE BAY, CARD SOUND, ETC
ROCK ISLAND
FLORIDA KEYS
SHOAL
PATCH REEF
SAND SHOAL
HAWK CHANNEL
WHITE BANK
OUTER REEF
FLORIDA STRAITS
50 FEET
ONE MILE
ADAPTED FROM P. ENOS, 1970
REEF TRACT
MUD BANKS
(less than a foot deep at normal water level)
PLEISTOCENE ROCKS
KEY LARGO LIMESTONE
MIAMI OOLITE
MIAMI
CAPE FLORIDA
Soldier Key
FOWEY ROCKS
Triumph Reef
BISCAYNE BAY
EVERGLADES
CAPE SABLE
Gulf of Mexico
FLORIDA BAY
Carysfort Reef
Molasses Reef
Alligator Reef
Axis of Florida Current
DRY TORTUGAS
LOWER KEYS
Big Pine Key
KEY WEST
Marquesas Keys
Rebecca Shoal
Hawk Channel
Sombrero Key
American Shoal
Sand Key
STRAITS OF FLORIDA
Water Depths in Fathoms
2
10
100
200
300
400
GEOLOGIC AND TOPOGRAPHIC FEATURES
AFTER U.S.C.&G.S. CHARTS 1112, 1113 (AFTER GINSBURG, 1956)

Figure I. – 3

Topography

All of the islands of the Florida Keys are of low elevation with approximately 90% of the land area lying less than 5 feet above mean sea level. Portions of a central ridge on Key Largo attain elevations of 10-15 feet, and Key West contains some 250 acres between 8 and 15 feet above m.s.l. This low-lying nature of the Keys makes them extremely susceptible to storm flooding.

A generalized portrayal of the submarine topography in the Florida Keys region is shown in Figure I-3 (South Florida Shallow Shelf). This illustration describes the shallow shelf from the Everglades through the Florida Keys to the outer reefs. The shallow inner shelf, where water is restricted by the linear Keys Island chain and by a series of carbonate mud banks, includes Florida Bay, Blackwater Sound, Barnes Sound, Card Sound and Biscayne Bay. Seaward off the Keys Island chain is the inner shelf margin. Hawk Channel and various patch reefs are located in this area. The outer shelf margin stretches from the sand shoal areas to the outer or fringing reefs. In some areas the outer reefs and surrounding sediment may extend to nearly sea level; these outer reef areas have been historically hazardous to shipping. From the outer shelf and reefs, the sea bottom drops rapidly to the edge of the continental shelf and into the Florida Straits.

Climate

The Keys' mild tropical climate with its nearly constant sea breezes has been a major attraction for new residents and tourists. Mean annual temperature in the Keys is about 77°F. The Upper Keys receive an average of 25-50 inches of rainfall each year, and the Lower Keys average 25-35 inches. Excellent year round weather conditions are also the major reason for the location of the Naval Air Station in the area.

However, not all aspects of the climate are favorable. The exposed location and low elevations of the Keys present unusually hazardous conditions with respect to hurricane driven storm tides. In the past 78 years a total of 18 significant hurricanes have impacted on the Keys. The chances of a hurricane impacting upon the Keys in any given year are 1 in 7, which is high when compared to 1 in 50 for Jacksonville and 1 in 20 for St. Petersburg. This storm flood prone condition increases both the cost and risk in public investment development and other urban and economic activities.

Hydrology

The complex hydrologic characteristics in and around the Florida Keys provide the setting for many types of marine systems. The Upper and Middle Keys are surrounded by Florida Bay to the north and west and by the Atlantic Ocean to the south and east. The Lower Keys are flanked by the Gulf of Mexico to the north and west and on the south by the Atlantic Ocean. The Gulfstream flows southward out of the Gulf of Mexico, turns easterly around Key West, and proceeds north along the southern and eastern edge of the Keys.

Florida Bay receives significant freshwater flow from the South Florida and Everglades National Park drainage areas. The freshwater and associated nutrient input from upland areas coupled with mangrove fringes and islands have created an extremely productive and valuable estuarine environment in Florida Bay upon which much of the commercial and sports fishing industry depends for its livelihood.

Biological Resources

Wildlife

A wide variety of interesting and, in some cases, rare forms of wildlife inhabit the Florida Keys. Much of this wildlife is heavily dependent upon the same mangrove communities which contribute to the marine productivity of the Keys. A few of the rare species rely upon tropical hammock habitat. At a conference on August 17-18, 1974, the Florida Committee on Rare and Endangered Plants and Animals presented information recently compiled on endangered, threatened and rare species throughout the state. The findings of this committee, which was composed of experts from state and federal wildlife agencies and state universities, revealed that the Florida Keys contains more endangered, threatened and rare plant and animal species than any other region of the state. The list compiled by the committee includes such endemic species as the Key deer, Key Largo wood rat, Key Largo deer mouse, and the American crocodile.

One of the primary values of the Keys' wildlife is its high aesthetic appeal. Many forms of wildlife such as wading birds and birds of prey can be seen nesting, feeding and roosting in and around mangrove areas and associated flats. Being the most visible form of wildlife, birds are an important component of the visual aesthetics which attract many thousands of tourists to the Keys. Evidence of this tourism attraction is shown by attendance figures at the National Key Deer and Great White Heron Wildlife Refuges. In 1972, these refuges attracted a total of 264,416 visitors. These refuges have no facilities for camping or water-oriented recreation; wildlife observation is the only attraction.

Plant Associations

The diverse and often unique plant associations of the Florida Keys are a vital element of Monroe County's natural system and economic structure. The natural functions performed by these plant communities with regard to marine resources, unique and endangered wildlife, shoreline stabilization, filtering of urban runoff and scenic value make them vital elements in maintenance of the urban structure and attractions for the tourist base of Monroe County's economy.

The terrestrial plant associations can best be described by separating the Keys into an upper and lower region, with the dividing line at Big Pine Key. There is a natural division and distinction between the plant associations of the Upper and Lower Keys in this region as a result of a change in the limestone substrata from Key Largo limestone to Miami oolite.

In the Upper Keys, tropical hardwood hammocks and mangrove swamps are the predominant plant associations. The tropical hardwood hammocks are found on the more elevated and better drained sites. The plant species of these hammocks are predominantly of Caribbean origin having been transported to the Keys by birds, ocean currents, and tropical storms. Gumbo-limbo, poisonwood, ironwood, mahogany, and lignum vitae are some of the better known plant species in these hammocks. Some of these tropical hammocks contain rare and unique tree cactus species. Logging by early settlers and recent land clearing for development have greatly reduced the acreage of prime, well developed hammocks. The mangrove swamps occupy lower and wetter sites with the majority of these mangrove areas subject to daily or seasonal tidal inundation.

The predominant plant associations in the Lower Keys, from No Name Key to Key West, are mangrove swamps, pinelands and tropical hardwood hammocks. The pinelands of the Lower Keys are found on well drained oolitic limestone areas. Caribbean slash pine, thatch and silver palm, and scrub palmetto are the primary component species in the pinelands of the Lower Keys.

Marine grass beds found in the shallow waters throughout the island chain and Florida Bay are vital to the maintenance of a high quality marine environment. These submerged grasses and the numerous forms of marine algae, which are attached to the blades and sediments, are the major producers of organic detritus in the Florida Keys. Detritus, in the form of decaying leaves and other plant parts, is vitally important to marine food chains. Marine grass beds also provide habitat for fish and other marine organisms and function as settling and stabilizing agents for suspended sediments and other pollutants. The primary species throughout the Florida Keys are turtle grass, manatee grass, and Cuban shoalweed.

Of all the biological resources in the Florida Keys, the mangrove communities are among the most critical for the maintenance of a high quality human and natural environment. Their natural values and functions can be directly related to the maintenance of the Urban Structure, Economy and Environment. These values and functions are accentuated by the location of the mangroves at the boundary between upland man-made development and inshore marine systems.

These communities are an essential part of the commercial fishing industry and sport fishing attraction of the Florida Keys. Mangrove communities have a high rate of leaf detritus production. Some highly productive red mangrove areas may produce as much as 9 metric tons/hectare/per year. Much of this production, in the form of leaf detritus, is exported to adjacent marine systems by tidal flushing action. This material is an important component of marine food chains which support many species nutritionally and economically important to man. The shallow waters in and around the mangrove communities function as "nursery areas." These essential habitats provide the food and shelter required by juvenile fish and other marine organisms for critical early growth and development. The nursery areas attract many adult sport fish species to the inshore island areas where they become accessible to the many visiting and local sport fishermen of the Florida Keys. Almost 75 percent of the valuable commercial and sport fishing species spend a portion of their life cycle in estuarine areas, such as the mangrove and marine grass communities.

The mangroves location at the boundary between open water and uplands and their complex root structure enables these trees to perform valuable functions as wave surge buffers and shoreline stabilizers. These are vital functions for the maintenance of the Urban Structure because the geographic location and low-lying topography of the Florida Keys makes them extremely susceptible and vulnerable to tropical storms. The Coastal Coordinating Council reported that about 90% of the land area in the Keys is less than 5 feet above mean sea level and subject to flooding at least once every 10 to 15 years. Hurricanes and associated storm driven waves have major impacts upon shorelines and structures. In any given year, there is a 1 in 7 chance of a hurricane hitting the Keys. In addition to hurricane probabilities, studies by the U.S. Army Corps of Engineers have shown that 99.6% of the entire Keys chain is below the 100 year statistical storm surge level.

The complex root structure of the mangrove trees also serves to accumulate and stabilize organic and inorganic materials which are transported by shore waves, high tides, boat wakes and storm runoff from uplands. Thus, not only do mangroves minimize erosion of existing shorelines, they actually build up additional land.

The mangrove communities in their natural state are valuable for the maintenance of water quality. Located between upland development and submerged marine systems, mangroves intercept and filter urban surface water runoff. Effluent from septic tanks percolates rapidly through the limestone substrata to the shallow saline aquifer. The geologic and hydrologic characteristics of the limestone base direct the effluent to move laterally toward the sea and emerge at the shoreline. Due to their location, mangroves are able to remove some of the nutrients and other pollutants before the effluent reaches open water area. Such filtration greatly reduces the export of excess nutrients, toxins and sediments to adjacent marine bottom lands. In addition, mangrove areas absorb wave action energy, as compared to man-made structures such as sea walls, which reflect wave energy. This wave energy absorbtion helps to reduce water turbidity.

As previously mentioned, the mangrove communities are vital to the wildlife populations of the Florida Keys. Such rare and endangered species as the roseate spoonbill, great white heron, American osprey, southern bald eagle, eastern brown pelican and the American crocodile concentrate much of their activities in the mangrove areas.

The mangrove forests of the Florida Keys are primarily composed of three plant species: red, black and white mangrove. In many other parts of south Florida these species are often separated into relatively discrete zones of growth. Typically, red mangroves grow predominantly below the mean high water line, black mangroves predominantly from the mean high water line to the normal reach of the spring tides and white mangroves in low coastal areas which are periodically, but not necessarily annually, flooded. Some mixing of the species occurs at the edges and within the species growth zones because mangroves progress generally seaward in their growth, building up the shoreline behind them and irregularly changing the conditions which best promote the growth of each species. The species growth zone pattern has led some biologists to place higher function values for production, stabilization and wave surge reduction on the red mangrove communities.

In the Florida Keys, however, there are numerous exceptions to the species growth zones of red to black to white. Due to the peculiar topographic and hydrologic formations in the Keys, a variety of combinations of mangrove species can occur in almost any undeveloped, low-lying area. The functional values of the Keys' mangrove communities are related more to their location and less to their particular species. The mangrove forests of the Florida Keys combine their most valuable functions to man in certain definable areas. These are tidal areas along shorelines, creeks and canals which are between open water and the reach of the mean spring high tide. This area contains the important productivity, shoreline stabilization, habitat and wildlife functions. The functions of the mangrove communities in this area cannot be replaced by man except at extreme public and private expense. This area, therefore, requires the most protection.

Coral Reef Communities

Coral reefs are among the most diverse, biologically productive, and aesthetically celebrated of all biologic communities. The living coral reef system of the Florida Reef Tract which occupies the southeastern continental shelf from Biscayne Bay to Key West is a unique and valuable feature of the State of Florida and the Nation. These reef communities far surpass those of southern California, Florida's West Coast and Texas.

The coral reefs are heavily utilized for recreation purposes and, as such, are an important component of the Keys' tourist oriented economy. Sport fishing and skin diving in and around the coral reefs are major attractions for both tourists and residents. Many thousands of tourists from in-state as well as the rest of the United States annually visit the Florida Keys to view the undersea coral gardens through glass-bottomed boats, to snorkel or scuba dive among the reefs, or to enjoy fishing, boating and other recreational opportunities afforded by the reefs. In 1973, the John Pennekamp Coral Reef State Park alone attracted 376,000 visitors.

The coral reef communities also provide habitat and food chain materials which positively benefit the commercial and sport fishing elements of the economy. The basic biologic structure of the coral reef communities involves coral polyps (animals) and algae (plants). A mutually beneficial relationship between the coral polyps and algae allows the reef community to successfully organize and recycle nutrients received from surrounding waters. Algal species live within and upon the tissues and hardened, calcium composed skeletons of the coral polyps. Basically, the waste products of the coral polyps are utilized by the algae, which provides respiratory waste products (such as oxygen and food materials) utilized by the coral polyps and other community organisms. The growth of the hardened, calcium skeleton of the various coral species provides habitat for a tremendous array of crustaceans, fishes and other marine life.

In addition to tourism, recreational, marine food chain and habitat values, the coral reefs are optimally designed natural breakwaters, which exert a major influence on the natural development and control of shorelines. The major current system of the Gulf Stream generates powerful counter-current eddies that spin southward over the reefs and impinge upon the shoreline itself. Tropical storms generate substantial wave surges that pass over the outer reefs and impact upon the shoreline. The living reef system reduces the speed and erosional power of these eddies and wave surges and performs a major role in the protection of shorelines. If the living coral were to die, the reef itself would undergo erosional deterioration. Water currents and waves would then have more direct impact upon the land, eroding shorefront property and greatly increasing the costs of shoreline stabilization in the Urban Structure.

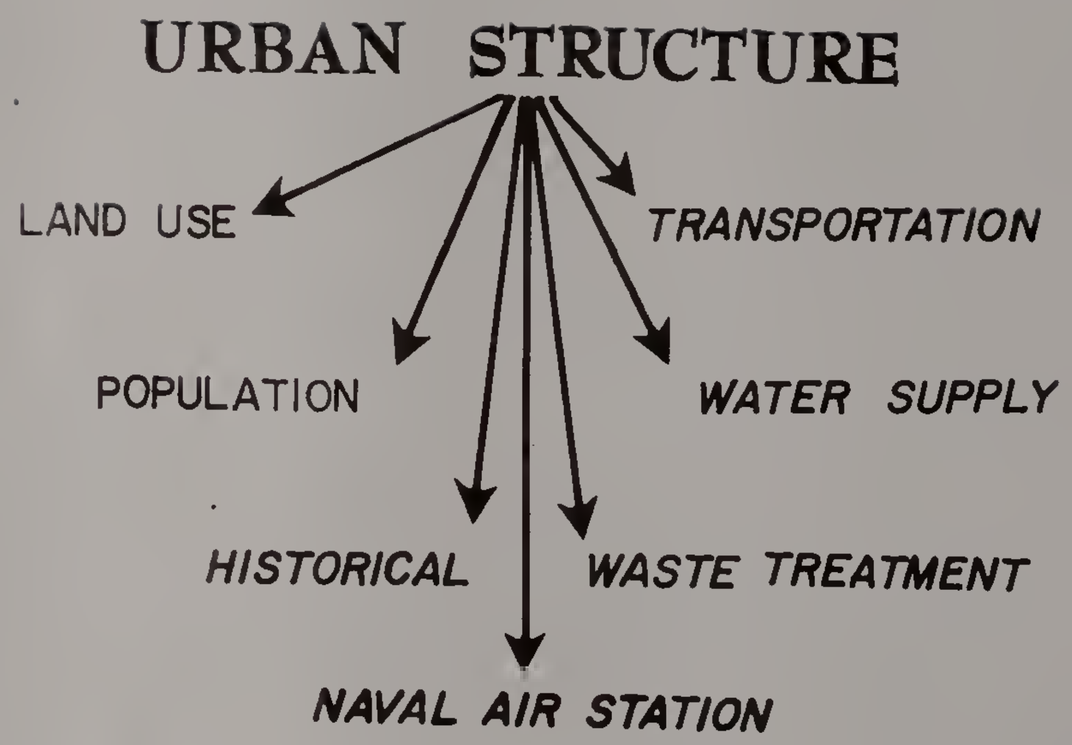
Water Quality

Water quality is a measure of the volume of organic and inorganic materials and other physical and chemical characteristics of the aquatic environment. When the levels of these materials exceed those normally existing in nature, they are termed pollutants, and their presence degrades the quality of water in the Keys. Pollutants may include such things as waste treatment plant or septic tank effluent, seepage from solid waste disposal areas, storm runoff from parking lots and residential areas and sedimentation and turbidity from dredge and fill operations. Many potential pollutants are placed directly into water bodies or in areas hydrologically linked to water bodies. Water and water movement are important for the assimilation, dilution and dispersal of potential pollutants. Problems with water quality degradation arise when potential pollutants are placed in areas which are incapable of assimilating, diluting or dispersing the amounts of disposed pollutants.

The high quality of the water in and around the Florida Keys is an essential element of the total system. One of the strongest attractions for residents and visitors to the area is the clear, blue waters of the Keys--a resource that rarely exists off the heavily populated, industrialized cities of the mainland.

Clean water is inextricably linked to the public health, well-being and economy of this community. Swimming, diving, and pleasure boating declines concomitantly with a deterioration in water quality. The importance of water oriented recreation is evidenced by the 7,400 pleasure boats (1 for every 7 residents) registered in Monroe County in 1972.

The continued vitality of the commercial and sport fishing industries is heavily dependent upon the maintenance of pollution free waters. Recently scientific attention has been drawn to the effects of polluted waters on the health of coral reef communities. The existing evidence indicates that a clear, unpolluted aquatic environment is necessary to the life cycle of coral communities.



URBAN STRUCTURE

The Urban Structure of the Florida Keys is primarily composed of the residential, commercial, historical and other urban developments, and the public facilities, such as transportation, waste disposal and water supply, which maintain and support these developments.

The physiographic nature of the Florida Keys presents special problems with respect to the maintenance of urban structure. The Keys, because of their location and low-lying topography, are susceptible and vulnerable to damage from tropical storms. Water supply is piped in from the mainland because of the non-potable characteristic of the saline and brackish aquifer underlying the Keys. The discontinuous nature of the islands has required the construction and maintenance of 44 bridges so that a land transportation link exists from the mainland to Key West. The high cost of land and the linear, scattered nature of the population throughout the island chain makes the collection and disposal of solid and liquid waste very difficult.

Because of significant interdependencies with the Economy and Environment, the Urban Structure of the Florida Keys must be maintained and improved in order to keep the total system viable. The existing and proposed public facilities and services of the urban structure are vital to the maintenance of all the components of the economy and to the biological resources of the environment. Furthermore, the large investment in public facilities must be protected in order to sustain the fiscal base of Monroe County and the Cities of Key West, Layton and Key Colony Beach.

Land Use

Prior to the completion of the Overseas Railroad, nearly all of the intensive land use activities in the Florida Keys were concentrated in and around Key West. The railroad, followed by the Overseas Highway and Navy pipeline, stimulated land development in the Upper, Middle, and Lower Keys.

Recent studies by the Coastal Coordinating Council and Florida Department of Transportation classified land use activities in the Keys. The results show that the majority of the developed land is classified as single family residential or under construction/ cleared. Industry was a very small percentage and agriculture is, for all purposes, non-existent. The land use percentages by census division are summarized below in Table I-1. The percentages in the table relate to total developed acreage rather than total acreages in each division.

Table I-1

LAND USE PERCENTAGES BY CENSUS DIVISION

CENSUS DIVISION	% INDUSTRIAL	% COMMERCIAL	% TOURIST ACCOMMODATIONS	% RESIDENTIAL SF	MF	MH	MR	% MILITARY FACILITIES*	% UNDER CONSTRUCTION / CLEARED	TOTAL ACRES
KEY WEST	0%	10%	2%	44%	8%	11%	–	21%	4%	2,510
LOWER KEYS	7%	2%	2%	31%	–	4%	0%	19%	35%	5,175
MIDDLE KEYS	2%	7%	11%	29%	0%	6%	0%	–	45%	2,380
UPPER KEYS	1%	3%	3%	47%	1%	8%	–	1%	36%	5,425

* does not include military housing areas

0 indicates an insignificant amount of the category

– indicates an absence of the category

SF single family

MF multi family

MH mobile home

MR mixed residential

From Coastal Coordinating Council, 1974

Population

The population of Monroe County is growing at an ever increasing rate. From 1960 to 1970 the population rose from 47,921 to 52,586, a 9.7% increase. Most recent estimates show the July 1, 1973 population level at 56,431. This three year increase represents an accelerated rate of growth from the 1960-1970 level. If this rate of growth were to continue, Monroe County would have a growth rate of over 20% in the 1970-1980 decade. The rapid growth in the last 5 to 7 years has severely impaired the ability of local government to provide public services and facilities in a number of areas.

Several population projections have been made for Monroe County. Projections of population vary with the analytical method used and the point in time for which they are made. The projections below were extracted from reports by 1) University of Florida (1974) and 2) Post, Buckley, Schuh and Jernigan (1974). The most conservative of these figures project a 13% increase between 1970-1980. Note that the estimated 1973 population level has already exceeded one of the 1975 projections.

	1975	1980	1985	1990	2000
1.	57,200	59,500	62,600	65,400	71,100
2.	55,900	60,600	65,800	72,700	82,000

Key West's population has had wide fluctuations over time. In 1950, Key West's population was 26,433; in 1960 it was 33,965, and in 1970 it decreased to 29,312. The major factor causing these fluctuations was a change in the number of military personnel stationed near Key West. However, as the number of seasonal and permanent residential housing units increases, the projected population estimates will be based more upon the civilian population. Projections by Milo Smith and Associates estimate that Key West's population will increase 10.17% during the 1970-1980 decade.

Tourists and second home residents also add to the total population of Monroe County. The Coastal Coordinating Council (1974) has estimated that at the present time there is a potential population of 69,750 in Monroe County. Estimates from several sources indicate that 20 percent of the population is seasonal and second home; the number of persons in Monroe County at any one time probably ranges from 62,000 to 64,000. This figure, coupled with an estimated peak tourist population of 20,000, would bring the total number of persons in Monroe County during the peak season to approximately 82,000 to 84,000. This figure supports the Florida Keys Aqueduct Authority's statement that approximately 80,000 persons were in the Keys during March, 1974.

Historical

The history of the Florida Keys and Key West is rich and varied, ranging from its first inhabitants, the Calusa Indians, through the Spanish and English explorations, pirate activities, and finally acquisition by the United States. The majority of the historical resources remaining are found in Key West and relate to economic and military activities since the mid-1800's.

The historical resources of the Florida Keys can be separated into three categories: Historic sites and buildings, distinctive architectural styles, and archaeological sites. Archaeological resources found throughout the Florida Keys relate to the era when the Calusa Indians inhabited the islands. The majority of the historical sites and buildings, and the unique architectural style are located in Key West. These particular historic sites and the area delineated as the Key West Historical Preservation District have been recognized by local, state and federal agencies as having significant historic value. As such, they represent a valuable attraction for tourists.

The Key West Historical Preservation District is an interesting association of houses, shops and other structures which have historical value. The unique architectural style which is prominent within the district is more commonly known as "Conch Architecture." It resembles Bahamian styles and is a visual illustration of the era when the Bahamas and Key West were economically linked through the trade route. Such a significant number of these structures, coupled with the particular architectural style, is not found anywhere else in the United States.

The Key West Historical Preservation District is on the national register of historic sites and is one of only four districts in the state whose value has been recognized by legislative act. In 1965, the Florida Legislature passed a bill establishing the historic district in Key West.

Unlike many historic areas, the major treasures of the Key West Historical Preservation District are not public structures, such as churches and government buildings. The district is notable because of domestic structures which were not designed by professional architects. The homes and cottages within the district represent a spectacular result of carpenter architecture, made by men without formal training, who probably solved the details of design as they built. The carpenter-architects, many of whom were ship captains and ship builders, designed their structures from memories of vessels and seaport homes from their own past.

Transportation

The Overseas Highway and air transport facilities in Key West and Marathon are the primary modes of transportation in the Florida Keys. The Overseas Highway, U.S. 1, extending from the mainland to Key West, is the major transportation link between the Keys and the mainland. It is primarily a two-lane facility, with four-lane portions from lower Key Largo to Tavernier, part of Marathon, and from Key West Naval Air Station into Key West. Key West International Airport and the county facility in Marathon serve as air carrier, air taxi and private aircraft facilities in the Keys. Limited facilities and small runway size make these airports incapable of handling large volumes of air traffic or jet carriers.

Key West possesses one of the few deep water ports in South Florida and has a great potential for water transport. A cargo ferry system is currently being developed and should be operational in a few months. A passenger ferry system is in an earlier development phase, and is projected to be in operation within a year. Development of over water mode facilities has major possibilities for supplementing existing transportation facilities as well as for significantly expanding the economic base.

The Overseas Highway is one of the most novel thoroughfares in the United States and represents a remarkable accomplishment in engineering. The highway and its 44 bridges link the Keys, the nation's longest, populated archipelago, to the Florida mainland, and provide the most reliable form of intra-island transportation. It is virtually the sole carrier for the hundreds of thousands of tourists who visit the area each year. It also serves as the only overland access to the facilities at the Key West Naval Air Station. In addition, the highway makes the rapid transportation of commercial fishing products to mainland markets an economic reality. In general, without the Overseas Highway, the flow of goods and services and other functions essential to the Keys' economy would not be possible.

The Overseas Highway is vital to the support sectors of the Keys' Urban Structure. At the present time, 75% of the water supply of the Keys is carried by a pipeline which utilizes the highway right-of-way and hangs from the U.S. 1 bridges at the water crossings. Plans to phase out the desalinization plant and increase the pipeline capacity will mean that all of the Keys' water supply will be transported in the right-of-way and by the bridges of the highway. Collection pipelines for proposed regional sewage treatment plants may also be carried by the Overseas Highway facilities. Public safety is an outstanding consideration because the highway is the only safe and efficient means for evacuating visitors and residents when tropical storms are threatening the Keys as well as the sole intra-Key route for emergency vehicles. The linear, urban area of the Keys relies solely on the highway for any internal movement. Essential urban support functions such as police and fire protection, school transportation and solid waste collection and disposal, are totally dependent on the highway. Additionally, nearly all consumer and capital goods must be imported into the Keys, most of them over U.S. 1.

The Overseas Highway was extremely expensive to build and is expensive to maintain. The total costs of the initial highway which was completed in 1944 is not known. Annual maintenance costs, however, are substantial. The state has spent one million dollars a year on bridge maintenance alone since 1963, yet this has been insufficient to prevent substantial deterioration of most of the bridges to the point where replacement or major repair is necessary. Additional weight restrictions were placed on the bridges in April, 1974, to protect the existing structures until they are replaced. In August, 1974, the Governor and Cabinet acting as the Administration Commission allocated 10.08 million dollars for additional maintenance which may help to ease weight restrictions prior to the replacement of the 37 bridges. The total public investment for the construction of the needed bridges has been estimated very conservatively to be 164 million dollars.

OVERSEAS HIGHWAY - U.S. 1

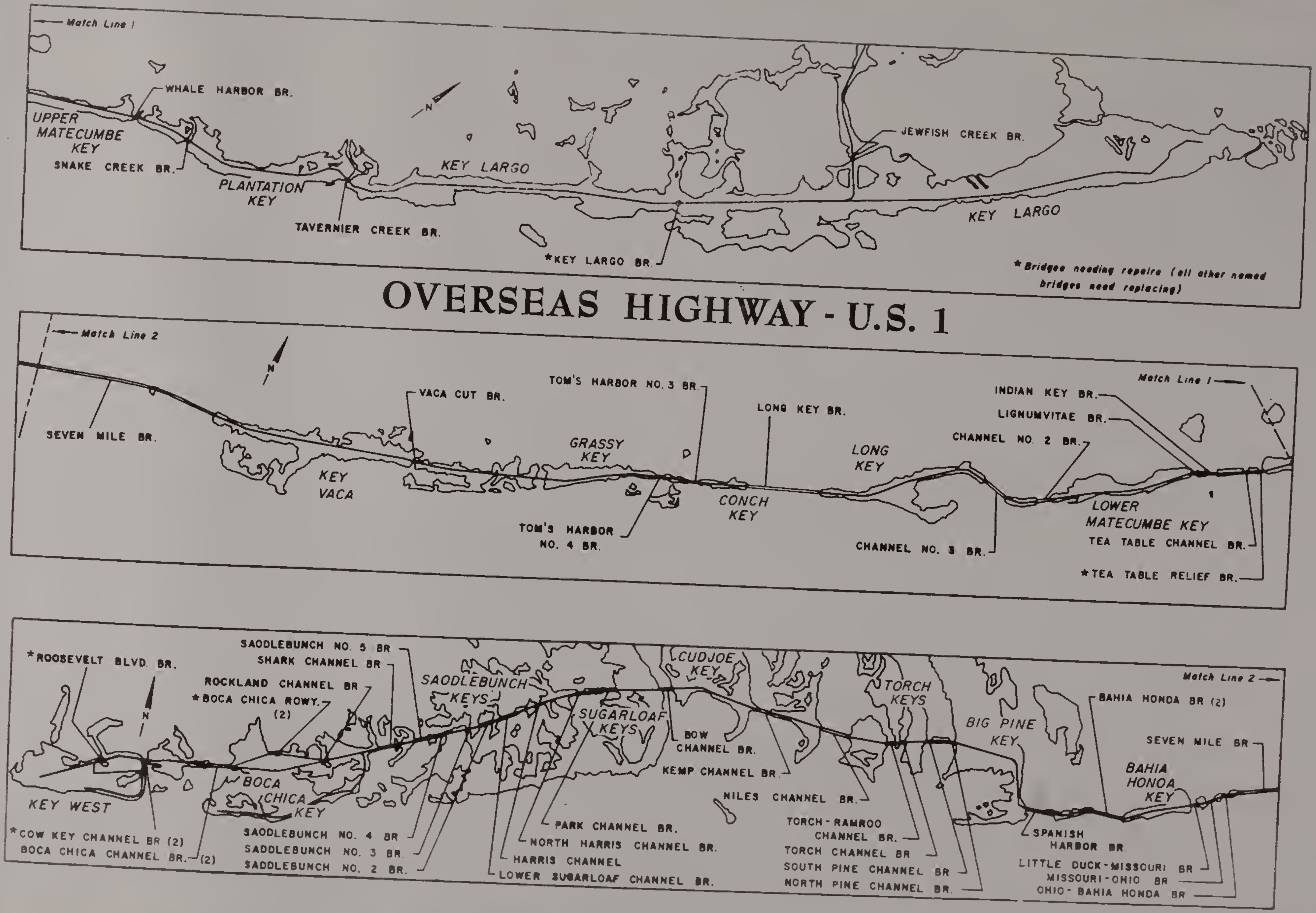


Figure I. – 4

Water Supply Facilities

Public water supply ranks with transportation as one of the most vital elements of the Urban Structure and the total Florida Keys system. The saline characteristic of the aquifer underlying the Keys has necessitated desalinization and importation of water from wellfields on the Florida mainland. This means that the water supply for the Keys is limited, and expensive.

The primary source of potable water for the island community is the 130 mile, 18 inch aqueduct constructed by the Navy in 1940 to supply water to the naval installations in the Key West area. The water for the aqueduct is obtained from wellfields near Homestead in Dade County. The ownership of the aqueduct is passing from the Navy to the Florida Keys Aqueduct Authority, which has been managing the facilities for several years. The present capacity of the pipeline is approximately 6.2 million gallons per day or about 3/4 of the current daily needs. In addition to the pipeline, there is a desalinization plant on Stock Island which has a design capacity of 2.6 million gallons per day. However, the plant has encountered numerous maintenance problems and does not usually exceed 2.0 million gallons per day. There is also a private facility on Key Largo (Ocean Reef Club) which utilizes a reverse osmosis procedure to obtain its water supply. Similar private facilities have been proposed for other large residential projects. Increased development over the past few years has brought the demand for water up to, and during some periods, beyond the 8.2 million gallon per day maximum production capacity of the system.

Adequate water supply is essential to the viability and necessary future expansion of the Economy. Without adequate water supply the Keys would be unable to support the hundreds of thousands of tourists who visit the Keys each year. The seasonal nature of the tourist industry generates peak demands that result in some oversizing of capital facilities relative to the resident population. Water is also important for other types of industry, especially for the processing of fish. The attraction of the Keys for retirees and second home residents will similarly be reduced if the new residents are unable to obtain adequate supplies of water. The Key West Naval Air Station obtains all of its water from the pipeline; any restrictions on its water supply could significantly affect its ability to function.

Water is fundamental to many aspects of the Urban Structure as well. Over 98 percent of the present population of the Florida Keys is totally dependent on the public facilities to provide drinking water, the exception being a new development which has a private reverse osmosis plant. Water transports sewage to regional or private treatment facilities and is important for fire protection, both for public fire fighting units and sprinkler systems installed within buildings. Salt water can be used in both sewage transport and fire fighting, but it is extremely corrosive to equipment and structures and could raise both capital and operating costs beyond the limits of feasibility.

Because water supply facilities are old and the growing demand will soon exceed the supply capacity, substantial public investment will be required in the near future to expand the water supply. The Florida Keys Aqueduct Authority will shortly begin to increase the capacity of the pipeline and build additional storage capacity in certain areas of the Keys. Ultimately, the cost of providing these additional facilities will significantly exceed the currently estimated 35 million dollars.

Waste Treatment Facilities

The proper treatment and disposal of solid and liquid waste is essential for maintaining the Keys community. Many of the elements of the three major components are heavily dependent upon a high quality human and natural environment.

The elements of the Economy such as tourism, commercial and sport fishing and retiree and second homes are heavily dependent upon a clean, pollution-free environment as both an attraction and a necessity. Water sports, such as swimming, diving and boating, are major activities for visitors and residents. Proper treatment and disposal of solid and liquid waste are indispensable to maintenance of these attractions as well as the protection of the public health.

Liquid waste in the Keys is primarily treated by package plants and septic tanks. There are approximately 200 private package plants serving commercial establishments, trailer parks and other residential areas. Over 70% of these package plants are very small with capacities less than 25,000 gallons per day. The majority of dwelling units in the unincorporated areas is served by septic tanks. The percentage of septic tank usage is as follows: Upper Keys, 95%; Middle Keys, 80%; and Lower Keys, 57%.

Key West, Key Colony Beach, and Boca Chica Air Base have central sewage collection facilities. The waste treatment facilities at Key Colony Beach and Boca Chica Naval Air Station provide secondary treatment. The facilities at Key West are inadequate and consist only of a collection system and pumping facility which discharges raw waste through a 4,700 foot outfall pipe into the Gulf Stream.

Solid waste for the Florida Keys is presently disposed at seven landfill sites throughout the islands. They consist of a county and city landfill on Stock Island, a county owned landfill on Long Key, four county franchised landfill areas on Key Largo, Book Key, Middle Torch Key and Saddlebunch Key, and a Navy landfill area on Fleming Key. The county is phasing out certain franchised landfill areas and acquiring ownership and management of the remaining sites.

The Florida Department of Pollution Control has repeatedly cited both public and private waste treatment facilities for violations of state standards. Faced by impending legal action by that Department, the City of Key West and Monroe County have initiated planning for regional solid and liquid waste treatment facilities.

Proposed waste treatment facilities will require substantial public investments at the federal, state and local levels. It is important to understand that the nature of the Keys' environment presents difficulties with respect to the proper treatment of waste. Factors such as the Keys' linear nature, low-lying topography and high water tables, porous substrata, and delicate marine systems combine to make adequate waste treatment both difficult and expensive. The regional solid waste plan prepared by Post, Buckley, Schuh and Jernigan in December, 1973, recommended waste baling with disposal at sanitary landfills. Their recommended plan would require an initial capital outlay of approximately 3.5 million dollars. Environmentally related problems associated with applying this disposal technique in the Keys, however, may necessitate significantly higher investments.

Future investments for liquid waste treatment include facilities for Key West and the unincorporated areas of Monroe County. The regional wastewater system proposed by Post, Buckley, Schuh and Jernigan in April, 1974, would initially consist of 4 plants with an estimated cost of 2.5 million dollars. Expansion of these initial plants and the construction of additional plants to accommodate anticipated growth would cost approximately 6.4 million dollars, bringing the total cost for regional wastewater treatment to 8.9 million dollars. A wastewater treatment plan for Key West by Smith and Gillespie Engineers, Inc., May, 1973, proposed 4 plans for the repair and reconstruction of the existing collection system and the construction of one or two treatment plants. The cost for the 4 plans ranges from 9.5 to nearly 15 million dollars. A total of the most conservative estimates for providing proper solid and liquid waste treatment in the Keys is 21.9 million dollars.

The wastewater treatment plan for the City of Key West, prepared by Smith and Gillespie Engineers, Inc., has been reviewed and approved by the Florida Department of Pollution Control. It was certified by the Environmental Protection Agency and a federal grant for the construction has been anticipated for the near future. The Monroe County plans for solid and liquid waste treatment prepared by Post, Buckley, Schuh, and Jernigan have not been approved by the Florida Department of Pollution Control.

Key West Naval Air Station

Another important element of the urban structure is the Key West Naval Air Station. The base, which covers a large amount of Boca Chica Key just north of Key West, is an essential component of the naval operations of the U. S. Atlantic Fleet and the economy of Monroe County.

The primary mission of the Naval Air Station is to maintain and operate facilities and provide services and materials to support operations of aviation activities and units of the U. S. Atlantic Fleet. It also provides substantial support to U. S. Army, Air Force, Coast Guard, Joint Forces and to other U. S. Navy units vital to the national defense. The Key West Naval Air Station is one of the very few areas within the continental United States which combines ideal flying weather conditions and unencumbered airspace immediately adjacent to the airfield. According to the Commander-in-Chief of the U. S. Atlantic Fleet, these two features alone contribute heavily to the readiness of Atlantic Fleet squadrons and to the cost-effectiveness of training operations. Naval Facilities Engineering Command Headquarters has stated that the replacement cost of existing facilities, exclusive of those recently declared excess, is 348 million dollars.

The military and related operations at the Naval Air Station also represent a substantial component of Monroe County's economy. About 13,000 military personnel and dependents are stationed in Monroe County and an additional 517 civilians are employed at the naval complex. In 1973, military income in Monroe County totaled $33 million. In 1974, military income is expected to exceed $50 million, providing over $20 million for the local economy. It is important to note that the economic benefits derived from the naval air base are available without major stresses on public facilities. The naval base has its own facilities to handle self-generated solid and liquid waste, however, the Navy has indicated interest in cooperation with local authorities on developing new joint facilities. The Navy was also responsible for the pipeline which brought water to the Keys. The air station also currently provides instrument landing services which make Key West International an all-weather airport facility. These economic benefits differ from the benefits provided by tourism and fishing, in that they are not seasonal in nature.

KEY WEST NAVAL AIR STATION

BOCA CHICA KEY, FLORIDA

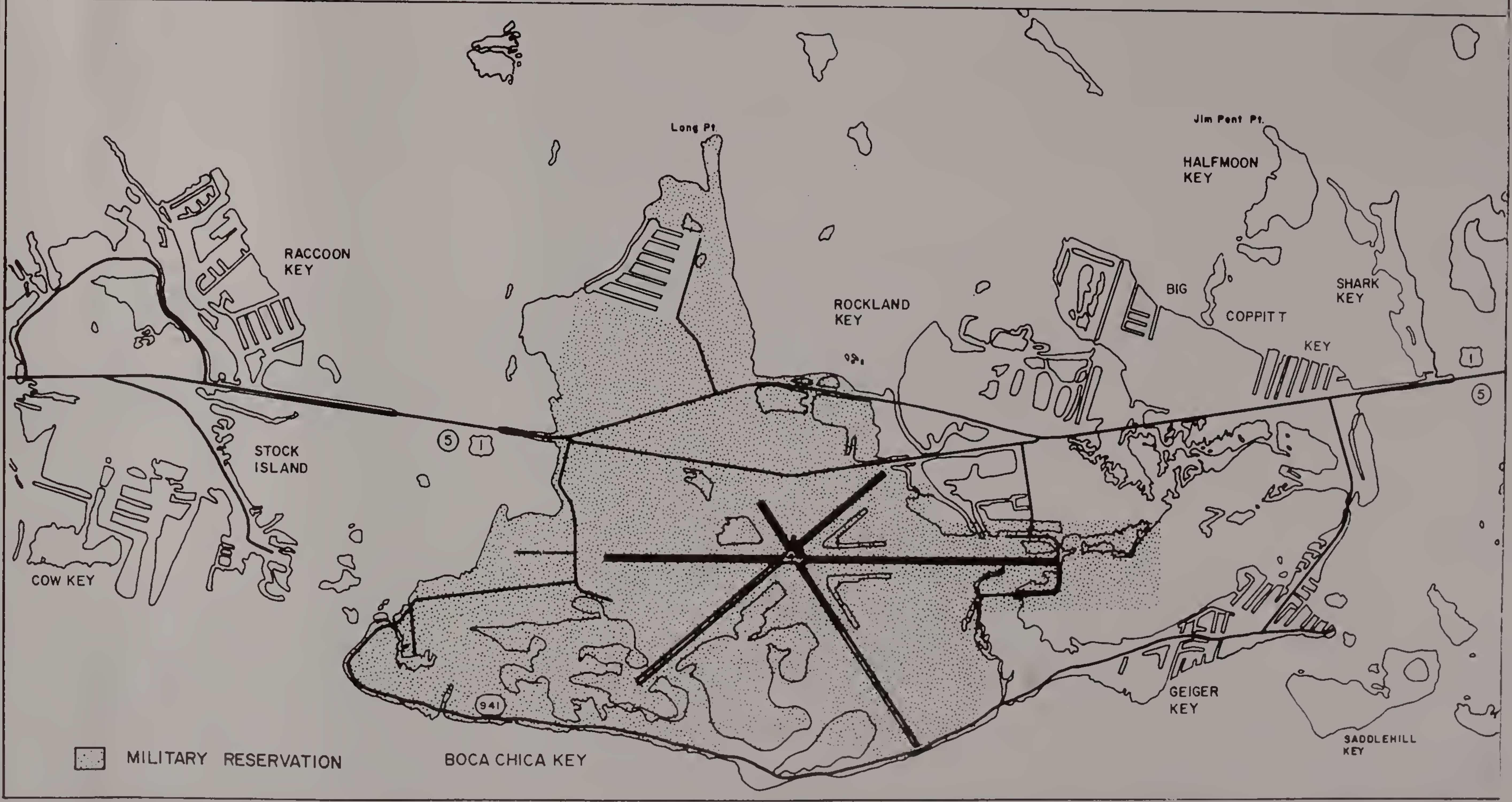
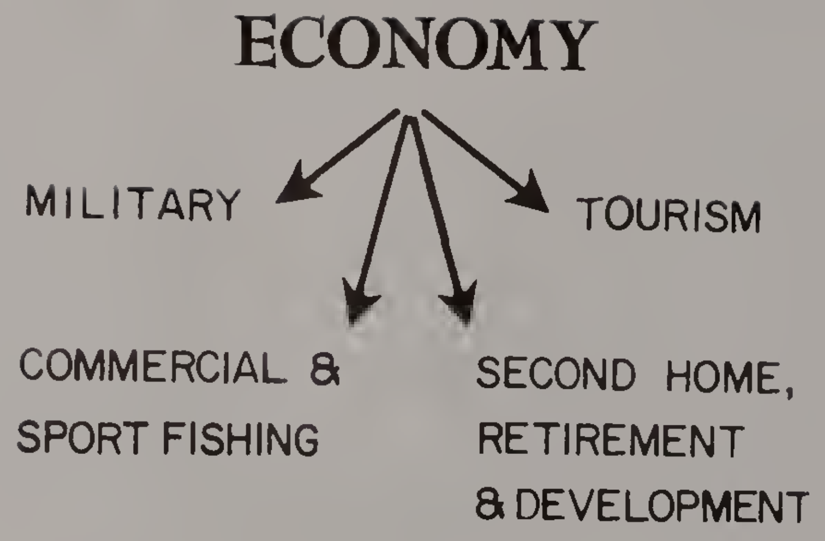


Figure I. – 5


ECONOMY
MILITARY
TOURISM
COMMERCIAL & SPORT FISHING
SECOND HOME, RETIREMENT & DEVELOPMENT

ECONOMY

The economic base of Monroe County can be divided into four main elements: tourism, commercial and sport fishing, retirement and second home center, and military operations. Most of the other economic activity such as mixed services and commerce, light industry, trades and government are indirectly related to the base elements or the maintenance of the Keys' population.

The Monroe County economy is greatly influenced by external and largely uncontrollable factors. Major economic activities are bound tightly to the area's natural environment and substantial public investments such as the Overseas Highway and the aqueduct. Because of this high interdependency and the physiographic nature of the Keys, the area's economy contains some unique characteristics and faces some unusual problems.

Several general factors have severely limited economic development and diversification in the Keys. The first is the high cost of land, a function of its limited availability in an island chain. Second, the Keys has both a service oriented and net importing economy. The only major product of the Keys is seafood; therefore, nearly all consumer and capital goods must be imported from distant urban markets. This distance from markets presents inordinate transportation costs for both raw materials and finished products. Third, the present condition of the bridges of the Overseas Highway has necessitated imposing weight restrictions on many of the bridges. This situation has further raised the cost of transportation of goods and compounded the cost of economic development. Fourth, water supply limitations tend to impede the introduction of many types of new industrial activities. Finally two of the major components of the economy (tourism and commercial and sport fishing) are heavily seasonal in nature.

These problems make the economic situation of the Keys unique in the State of Florida. The Keys are almost totally dependent on the natural resources and public investments to attract and support tourism and other non-industrial economic base activities.

Tourism

It has been estimated that approximately 550,000 out-of-state tourists and 400,000 Floridians living outside of Monroe County visited the Keys in 1972. Many of the Florida visitors came from the heavily populated southeast region of the state.

The gross income from tourism was estimated to range between 100 and 150 million dollars in 1972. Projections for 1982 suggest over one million out-of-state tourists may visit the Keys providing a gross income from out-of-state tourism at over 250 million dollars. The majority of this economic income, however, is seasonal with peak periods from November to May. Of the approximately 17,600 persons in the civilian labor force of Monroe County, over 40% are in employment categories directly related to tourism.

A 1971 outdoor recreation study by the Florida Department of Natural Resources indicated that the seven things most desired by tourists coming into the state were beaches, an atmosphere of relaxation and fun, commercial attractions, parks, outdoor recreation areas, natural scenery, and historical places. The high quality and natural beauty of the environment, excellent fishing, and unique historical attractions combine to make the Keys a prime tourist attraction responsive to all these demands. The excellent natural environment performs a two-fold function with tourism. It attracts the tourists who enjoy scenic vistas and recreation and supports the variety of marine life that attract the fishing tourist.

The natural beauty and ecological significance of the Keys region is reflected by the area's major state parks, aquatic preserves, and federal lands which are shown in Figure I-6. These areas are themselves major visitor attractions.

Another resource important to tourism is the substantial historical heritage and the Key West Historical Preservation District. This Historical District is one of only four in the State of Florida.

While tourism is and will continue to be a significant element in the Keys' economy, it has several important limitations that must be recognized:

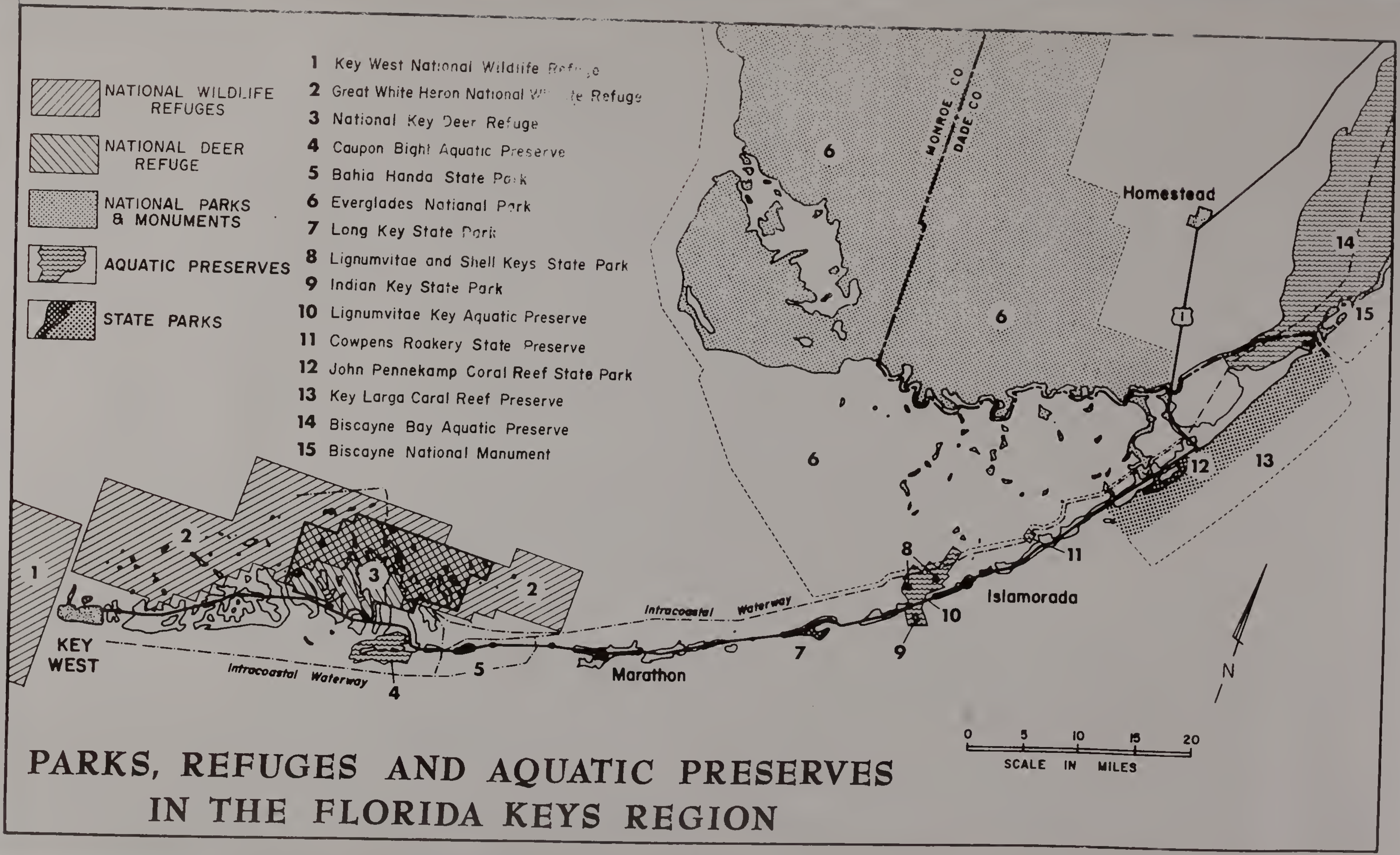
1. Tourism has a basically seasonal nature, making income and revenues irregular and requiring capital investments in both the public and private sectors, which are largely unused for a substantial portion of each year.
2. Most tourist oriented employment is both low wage and irregular. Many of the applicants for such jobs are low skilled employees who may produce high demands for social services in the off season, unless positions for their skill and education level are available.
3. The demand for tourist services is extremely elastic, making this sector highly susceptible to adverse national or state economic conditions and to resource shortages such as the "energy crisis".

All but the last of these limitations can be overcome in the Keys by maintaining a high level of attractiveness and expanding the economic base to provide off season employment for the lower skilled workers.

Commercial and Sport Fishing

Commercial and sport fishing industries are an integral component of Monroe County's economic base. The biological resources of the Florida Keys region (mangrove forests, marine grass beds and coral reefs) create the conditions and food materials that are prerequisites for these important industries.

The commercial fishing industry produces the only significant export product of the Florida Keys. In 1973, Monroe County catches amounted to 15.9% of the total commercial marine landings in Florida. Shrimp, spiny lobster and Spanish mackerel


NATIONAL WILDLIFE REFUGES
NATIONAL DEER REFUGE
NATIONAL PARKS & MONUMENTS
AQUATIC PRESERVES
STATE PARKS
1 Key West National Wildlife Refuge
2 Great White Heron National Wildlife Refuge
3 National Key Deer Refuge
4 Coupon Bight Aquatic Preserve
5 Bahia Honda State Park
6 Everglades National Park
7 Long Key State Park
8 Lignumvitae and Shell Keys State Park
9 Indian Key State Park
10 Lignumvitae Key Aquatic Preserve
11 Cowpens Roakery State Preserve
12 John Pennekamp Coral Reef State Park
13 Key Larga Caral Reef Preserve
14 Biscayne Bay Aquatic Preserve
15 Biscayne National Manument
MONROE CO
DADE CO
Homestead
1
KEY WEST
Marathon
Islamorada
Intracoastal Waterway
Intracoastal Waterway
N
0 5 10 15 20
SCALE IN MILES

PARKS, REFUGES AND AQUATIC PRESERVES IN THE FLORIDA KEYS REGION

Figure I.-6

constitute the most valuable portions of the landings. The dockside value of over 17 million dollars was 27.6% of the State total dollar value for commercial fish. The Florida Department of Natural Resources estimates that market value after processing is 4-5 times the dockside value. The total market value for all Monroe County fishery products would therefore range from $70 to $90 million.

Approximately 450 boats make up the Keys' shrimp fleet, and the entire industry employs approximately 1,400 persons at the season's height. Year round employment in the fisheries amounts to approximately 500 persons. The Dry Tortugas, which lies about 65 miles west, is the major shrimping area. The shrimp fleet is primarily migratory coming from as far north as the Carolinas and as far west as Texas. During the season, the fleet is primarily based at Key West, Safe Harbor, and Marathon. Public investments such as water supply, liquid waste treatment, and the Overseas Highway are fundamental to the processing, delivery, and the very survival of this important industry.

The quality of sports fishing in the Florida Keys is famous throughout the United States and is an acknowledged attraction for tourists. Over 80 party boats and many more charter and guide boats operate within the Keys. Tarpon, snook, bonefish, sea trout, and barracuda are popular targets of the in-shore fishermen. The favorites of deep water enthusiasts are dolphin, sailfish, grouper, wahoo, tuna, and marlin. In addition, skin and scuba divers capture spiny lobster and spear fish in large quantities each year. The sport fishing industry is a well established component of the local economy. It is difficult to develop a precise monetary value because of the industry's close relationship to tourism facilities and services. However, annual estimates run as high as $25 million.

The fishing industries are not without their own limitations. Seasonality, relatively low employment and susceptibility to inflation are the major restrictions of these high capital/high risk ventures. Additionally, fishing tends to be inherently self-limiting in catch size in order to assure its long term existence.

If the biological resources supporting the fishing industries can be protected, and the urban structure upgraded to an adequate support level, revenue increases may be produced by expansion of the processing and marketing aspects of the industry.

Second Home, Retirement and Development

Milo Smith and Associates (1970) reported that approximately 25 to 30% of the households in the Florida Keys are not permanent (year round) residences. Approximately 2,500 homes in the county are "second homes." The percentage of "second homes" is much lower for the Key West Urban Area.

It is difficult to estimate the total impact of second homes. It may be reasonably assumed they are mostly occupied during the tourist season and weekends, and hence put additional pressures on the urban support structures such as water, waste disposal and treatment, and transportation facilities during those times.

A large number of retirees live in Monroe County. In 1950, 7.5% of the County's population was 60 years of age and over. In 1970, 13.3% of the County's population was 60 or over, while persons 65 and over constituted 8.5%. This represents a noticeable increase in the growth rate for the number of older citizens in the population.

The rapid rate of growth in this segment of the population, as indicated by recent years' trends, will noticeably affect Monroe County's economy by stimulating economic activity in trades, services, and the housing market, while not adding significantly to the labor pool. Ten percent of the County's total personal income resulted from transfer payments such as pensions and social security. The U.S. Department of Health Education and Welfare records indicate that 5,273 persons over 60 years of age received social security benefits in 1972, while only 280 persons in the county received state old-age assistance.

A large number of naval retirees have settled in the area because of the services available at the Naval Air Station Complex. Military retirees differ from the general retirement population. They are often younger and have a higher educational level. Because of the facilities provided by the military, they are not as dependent on local services or the local economy. Due to their younger age, they often compete in the local employment market.

Nearly all retirees live on fixed incomes. With the rising national rate of inflation, these individuals are usually more severely restricted in their ultimate purchasing power than those on non-fixed incomes. This may result in greater burdens on welfare services to supplement incomes or provide necessary social services. In addition, retirees usually have higher and specialized demands for some services such as medicine and public transportation than the general population.

A most significant economic aspect related to the second home and retirement element of the economy is development and construction of housing and commercial facilities to support these and other new residents. Development is a major industry in the area, especially in the Middle and Upper Keys. Florida Department of Commerce figures indicate that the industry provides about 5% of all employment, personal income and gross sales in the Florida Keys and is virtually the sole source of growth for the non-toursits commercial segment of the economy.

The development sector of the economy is heavily dependent upon the attractiveness of the environment and the existence of an urban structure adequate to support population growth. This industry is particularly vulnerable to adverse national and state economic conditions, such as inflation and "tight money." This element of the economy can benefit most from the provision of proposed public facilities.

Military

The final and largest single element of the Monroe County economy is the military. This is one of the major segments of the Monroe economy that is not seasonal in nature. Two reports of the U. S. Department of Defense, Office of Economic Adjustment (November 1972 and September 1973), discussed the impact of reducing the level of activities of the Navy. The reports revealed a high level of dependence on the military in both the Monroe County and Key West economy. In 1972, the Naval Air Station provided 29% of all employment and 36% of all personal income in Monroe County amounting to almost 80 million dollars. In Key West the dependence is greater. Table I-2 shows impact of the Naval Air Station on Business in the Key West area.

Table I-2

Defense Expenditures Impact on Select Key West Area Businesses

City Electric System (sale to military bases).	36%
Commercial banks (military only)	40%
Savings and Loan Association	30%
Automobile sales	65%
Recreation outlets (military and civil service)	80%
Food sales (military and civil service)	60%
Clothing sales (military and civil service)	50%
Newspaper sales	32%

Other businesses have estimated their dependence on sales to military and civilian Defense workers to be as high as 75%.

Office of Economic Adjustment, 1972
U. S. Department of Defense

The number of military personnel and dependents stationed in the area amounted to approximately 13,000 persons in 1972 (24% of the

Monroe County population and 40% of the Key West Urban Area populations). Approximately 39% of the Florida Keys Junior College student population and 45% of the students in the Monroe County elementary and secondary educational facilities were from the military or military related families.

The Navy has provided other economic gains to the community in addition to direct federal pyarolls and assistance. The Keys have benefited directly from the naval wellfields and aqueduct that provides 75% of Monroe County's water supply and from the instrument services from the air station to Key West International.

The military element of the economy is not constrained by the majority of the limitations affecting the other sectors. It is, however, subject to the discretion of the U.S. Executive Branch and Congress and is highly susceptible to the encroachment of incompatible land uses and development configurations into its zones of operations.

In terms of location, it should be recognized that economic activity other than tourism and retail trade, is not evenly distributed throughout the Keys. Military related activities and a substantial portion of the fishing industries are centered in and around Key West. The Middle and Upper Keys have received the major portion of recent development activities. A more diversified economic base may be needed to avoid future conflicts regarding income and resource allocation between the various regions of this island chain.

Finally, it should be noted that for a variety of reasons, primarily related to the energy crisis, national economic conditions and problems in the urban structure, all elements of the Keys' economy, except the military, have recently begun to evidence major stresses.

The foregoing discussion indicates some of the strengths and weaknesses of the main elements of the Florida Keys' economy and reveals the interdependence of those segments and the entire economy upon the environment and urban structure of the system.

C. SUMMARY OF RESOURCES AND INVESTMENTS OF STATE AND REGIONAL IMPORTANCE

The following is a summarized list of the values and functions of the resources and investments of state and regional importance. These are the values and functions outlined in greater detail within the context of the previous discussion of the total Keys system.

I. Natural Resources

1. WATER QUALITY

   a) The aesthetic value of clear, blue waters is a major attraction for tourists and residents;

   b) It is essential for public health and welfare in the Keys where water oriented recreation is an important resident and visitor activity; and

   c) It is important for the highly productive and valuable commercial and sport fishing industries.

2. CORAL REEF COMMUNITIES

   a) The most massive, interesting and ecologically diverse reef system in the continental United States;

   b) A major tourist attraction of the state and nation;

   c) Provide food chain materials and habitat beneficial to the commercial sport fishing element of the economy; and

   d) Provide natural breakwaters which exert a major influence on the natural development and control of shorelines.

3. MANGROVE AREAS

   a) Provide large quantities of leaf detritus which is an essential component of marine food chains supporting species nutritionally and economically important to man;

   b) Function as nursery areas for many fishes and other marine organisms;

   c) Improve water quality through natural filtering characteristics;

   d) Function as island builders;

   e) Absorb wave energy, thereby stabilizing shorelines and reducing water turbidity;

   f) Function as buffers of tropical storm driven waves; and

   g) Are vital to the wildlife populations.

II. Public Investments

1. OVERSEAS HIGHWAY

   a) One of the most remarkable highways and engineering accomplishments in the United States.

   b) The primary transportation link between the Keys and the mainland and as such is essential for the transportation of:

      1. 75% of the water supply of the Keys

      2. Tourists into and throughout the Keys

3. Products of the commercial fishing industry to the mainland

4. Almost all consumer and capital goods and materials into the Keys

5. Evacuating visitors and residents when tropical storms threaten

c) The primary intra-key transportation link and as such is essential for such urban support functions as:

1. Police and fire protection

2. School transportation

3. Solid waste collection and disposal

4. Liquid waste collection and disposal

d) Represents a significant existing public investment and a proposed investment of over 164 million dollars.

2. PUBLIC WATER SUPPLY FACILITIES

a) Essential for supporting the substantial tourism of the area;

b) Necessary for many types of industry, in particular the processing of commercial fishing products;

c) Indispensable for continued development of the Keys as a retirement and second home center;

d) Supplies all of the water used by the Key West Naval Air Station;

e) Provides the water for more than 98% of the existing population;

f) Important for fire protection and as the medium for transporting sewage to treatment facilities; and

g) Represents a proposed public investment of more than 35 million dollars.

3. WASTE TREATMENT FACILITIES

a) Required to maintain a clean, pollution-free environment essential for the tourism, commercial and sportsfishing, retiree and second home elements of the economy;

b) Vital to the health and welfare of the existing population; and

c) Represents a proposed public investment of at least 21.9 million dollars.

4. KEY WEST NAVAL AIR STATION

a) One of the very few military bases in the continental United States which combines ideal flying weather conditions and unencumbered airspace adjacent to an airfield;

b) Essential to the maintenance and operations of the U.S. Atlantic Fleet and other U.S. military units which are vital to the national defense;

c) A substantial component of Monroe County's and Key West's economy;

d) The economic benefits are non-seasonal in nature and are derived without significant stress upon public facilities; and

e) Represents a public investment with a replacement cost of 348 million dollars.

III. Historical Resources

1. KEY WEST HISTORICAL PRESERVATION DISTRICT

   a) One of only four areas in the state which have been designated as a historical district by the state legislature;

   b) An important component of the complete historical heritage of Key West;

   c) Contains a significant number of domestic structures of unique architectural style. A similar concentration can be found nowhere else in the United States; and

   d) Represents a valuable tourist attraction and as such becomes an important element of the economy.

SECTION II

PROBLEMS AND DANGERS OF UNCOORDINATED DEVELOPMENT

The modern growth pattern of the Florida Keys was established in the aftermath of that deadly Labor Day in 1935, when a major hurricane decimated the Middle Keys, sweeping the Overseas Railroad into the sea. Prior to that time, the Keys had been accessible only by ship and for less than a quarter of a century, by rail. An outgrowth of that tragic September day, however, was the inception of the Overseas Highway. The highway was opened in 1938 and was completed in 1944 in time to receive a trickle of the flood of post-war growth in Florida. Accessibility by auto brought tourism and prosperity to the area. And slow but stable growth began in the sparsely populated Middle and Upper Keys. The rate of growth was moderate through the late 40's and 50's and early 60's, fluctuating with military activities and the availability of outside capital which plummeted on the occasion of every new hurricane.

In the mid and late 1960's, however, as the last prime coastal lands of peninsular South Florida were being developed and the daily dissatisfactions of high density urban life began to crowd those who had fled such life in the North, the growth rate of the Keys began to climb. New development for the housing and maintenance of tourists and part-time and permanent residents began to spring up everywhere. This phenomenal rate of growth can be seen in the graphic representation of residential building permits issued in the last five years in Figure II-1. The costs of growth were unknown, unrecognized or forgotten with the influx of new income sources, new capital and new tax revenues. There were costs and problems, however, some new, some predating the Overseas Highway, and all accelerating in proportion to the growth rate.

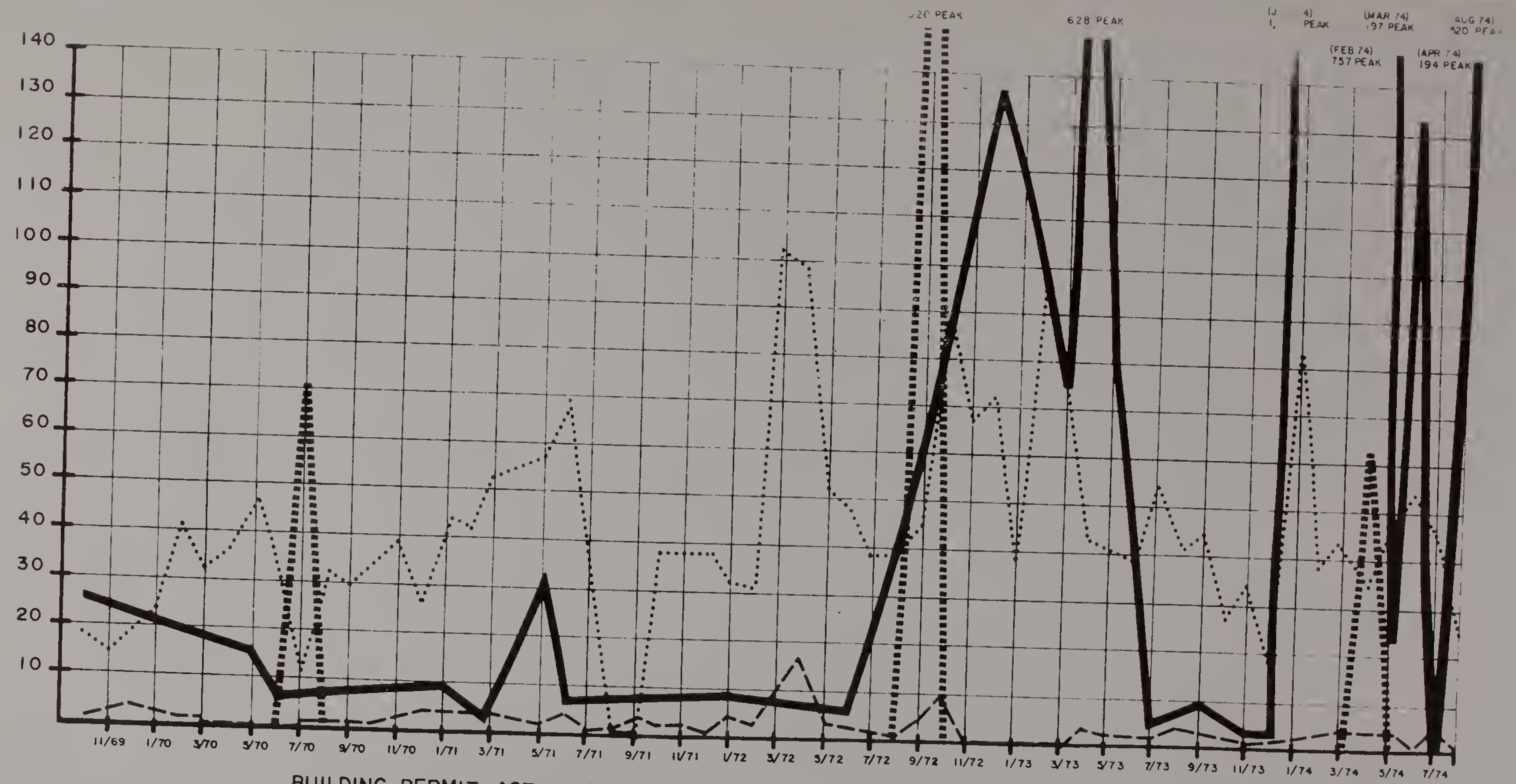
An historical view of the problems of the Keys is revealed in the April 20, 1936 issue of The Key West Citizen which editorially lists seven needed improvements in the Keys:

1. Water and sewer systems
2. Bridges to complete the road to the mainland
3. Establishment of a free port
4. More hotels and apartments
5. A bathing pavilion
6. Airports
7. Consolidation of city and county governments

A second historical vantage point is the July 1953 report on the Keys of the United Community Defense Services Inc., which lists water shortages and possible contamination of water supply, total deterioration of public sewage treatment plants, proliferation of private package plants, water quality degradation and inadequacy of the solid waste disposal system as persistent problems. The historical problems of hurricane flooding are well documented and notoriously tragic.

Some of the costs and problems associated with the most recent growth surge are continuations of the historical problems; others such as bridge deterioration on the Overseas Highway and shoreline degradation are totally new, but equally demanding of solutions.

As discussed in the previous section, the values and functions of the resources and investments of state and regional importance are vital to the total Keys system. Development practices which could endanger these resources and investments need to be carefully evaluated and properly managed so as to avoid adverse impacts upon the values and functions.



BUILDING PERMIT ACTIVITIES IN MONROE COUNTY · OCTOBER 1969—AUGUST 1974

LEGEND

UNINCORPORATED AREAS

.... 1&2 UNIT STRUCTURES

▬ MULTIPLE UNIT STRUCTURES

KEY WEST

— — — 1&2 UNIT STRUCTURES

▪▪▪▪▪▪▪▪ MULTIPLE UNIT STRUCTURES

Figure II-1

Endangerment of resources and investments in the Florida Keys is a complex matter. Factors include:

1) The elements and components of the Keys system are so closely interrelated that direct adverse effects upon one of the elements can have secondary, chain reaction effects throughout the total system,

2) Endangerment to resources and investments may be a result of either existing or future problems, and

3) Since public facilities are themselves development, differentiation must be made between dangers to the public facilities investments from other development and dangers from the facilities to the environment.

This section of the report is designed to discuss the problems and dangers associated with uncoordinated development and examine the basis of the existing problems and the potential for new ones. It will be structured in a manner similar to the preceding section, emphasizing the major components of the Florida Keys system.

UNCOORDINATED DEVELOPMENT

Uncoordinated development is development which occurs without adequate planning or direction and without sufficient assessment of the impact of such development on the functioning of the community or system as a whole. Such is the case with most of the rapid development which has occurred in recent years in the Keys. Monroe County, for example, where most of the recent growth has been located has had zoning codes since 1960, but zoning activities since then appear to have been on an ad hoc basis because the County has not adopted a comprehensive plan or land use plan in that time. Furthermore, current county zoning maps are simply aerial photos with zoning districts penned in and are not generally available for distribution. Finally, of the County's Building and Zoning Department staff of 22, only the Director functions as a planner. While the County has made use of consultants, they have no full-time day to day assistance in planning.

PROBLEMS AND DANGERS TO THE ENVIRONMENT

Many of the aspects of uncoordinated development affecting the environment of the Florida Keys are urban structure problems which will be discussed in greater detail below. The primary causes of adverse impact on the environment have been illegal or improperly managed dredge and fill operations and inadequately treated or improperly disposed wastes.

Since the mid 1950's, six to seven thousand acres of mangroves have been removed or destroyed in the Keys according to chronological analysis of aerial photography by the Florida Coastal Coordinating Council. Much of this loss was sustained in the valuable tidal mangrove communities and was the direct result of dredge and fill activities occurring in the last 10 years. Further examples of dredge and fill problems include improper placement of dredge spoils which have smothered marine grass beds and the poor design or location of dredged canals which contribute to degradation of water quality. Fifty dredge and fill projects have been cited for violations by the Department of Pollution Control since January, 1973. Other projects have been cited for trespassing on state-owned bottom lands by the Trustees of the Internal Improvement Trust Fund. A January 31, 1972 interagency report to the Board of the Internal Improvement Trust Fund indicated that dredging has been detrimental to the fisheries and inshore nursery areas of the Keys.

Reduction in the shoreline stabilization and wave surge protection values of tidal mangroves are also significant. It is estimated that a 4 foot high, 10 second interval wave exerts a 33 foot ton force on the shoreline. An 8 foot wave of the same interval, while only double the height, exerts nearly 4 times that force or 131 foot tons. Waves transmit a portion of this energy to fixed barriers, such as sea walls or homes. Any weakness in such structures will result in damage or destruction. However, tidal mangroves and other storm surge exposed mangroves can, because of their flexibility, absorb wind and storm wave energies and often provide large storage areas for flood waters. Loss of these special functions can have costly and tragic results. In addition, the filtering capacity of the mangroves for runoff and shoreline effluent leachates is removed. This is particularly significant since analyses of vegetation maps indicate that 67% of the total mangrove acreage is on islands with overland access to U.S. 1 and which are thus very susceptible to destruction from uncontrolled development. Of this 67%, only 2% of the mangroves are located within the parks and refuges.

Pollutants and degradation of water quality from dredge and fill, untreated or inadequately treated wastes from sewer systems, septic tanks and storm runoff from construction and other urban areas can endanger water based recreation and ultimately tourism itself. There is evidence from studies of Hawaiian and Caribbean coral reef systems that such pollutants can have serious impacts on coral reefs. The coral communities of the Florida Keys are at the northernmost extention of the range for coral reefs and as such as those previously mentioned could place additional stresses on the reefs. Recent studies by the Harbor Branch Foundation (1974) revealed severe damages in certain coral communities of the Florida Reef Tract. Most notable is the Hen and Chickens patch reef off Plantation Key in which 82% of the reef building corals are dead. The studies, however, have not yet discovered the exact causes of mortality.

Another environmental problem is the degradation of scenic and aesthetic resources due to incompatible adjacent land uses, inadequate design and sign regulation, and unregulated land clearing. The latter, in addition to leaving unsightly, runoff-prone scars on the land for months or even years prior to development, also adversely affects the tourist related wildlife resources. The number of acres in this condition is substantial, as illustrated by the land use inventory of the Coastal Coordinating Council which classifies nearly 5,000 acres as Under Construction/Cleared (see Table I-1).

No area of major growth potential can avoid some stresses from urbanization on its natural resources. It is essential to realize, however, that when the natural and environmental resources make so great a contribution to the economy and public welfare as those of the Florida Keys, uncoordinated development which seriously degrades those resources, is a form of self-destruction.

PROBLEMS AND DANGERS OF THE URBAN STRUCTURE

Provision of public services and facilities in the Keys is an intricate and expensive problem. The linear nature of the Keys, inter-island connections, relatively distant activity nodes and the geologic substrata, greatly increase both the cost and complexity of urban services to a magnitude much greater than those encountered in mainland cities. The basic interrelationships of the facilities and structures themselves are just as complex as the relationship of those facilities to the Environment and the Economy.

The simplest problem of uncoordinated development regarding the urban structure of the Keys is encroachment of incompatible land uses and development configurations onto the functional areas of major public investments.

Serious encroachment of incompatible uses and configurations such as residential and high rise development into the noise and hazard zones of the Key West Naval Air Station could ultimately result in closing this last Naval facility in the Keys. This would produce major facility and security problems for Atlantic Fleet Air operations and act to the severe detriment of the local economy. Similar problems have already been created in Jacksonville, Florida and at the Los Alemedos Naval Air Station in California. At Los Alemedos public health and safety concerns over extensive residential encroachment was a significant factor in the closing of the base.

Similarly, residential intrusions into the area [illegible] waste treatment and disposal sites can reduce the functional values of the sites by creating public demand for their removal because of odor and traffic problems. In this area of limited land availability, replacement of sites for such facilities can significantly increase treatment and disposal costs, fees and taxes.

Highway encroachment is also an important problem. Intensive development activities at major intersections and near bridge approaches can greatly increase the county death rate per 100 million miles of travel. The Monroe County rate of 6.2 deaths per 100 million miles of auto travel is already higher than the state average of 4.5. Extensive commercial strip developments along the Overseas Highway have created congestion and accident prone areas with dangerous multiple entry and exit points. Further, such congestion can seriously hamper any necessary evacuation procedures and slow emergency vehicle operations.

A related transportation problem is the protection of the major public investment for the replacement of 37 bridges. Bridge replacement will cost more than 160 million dollars. At a minimum all access near bridges must be restricted to reduce accidents which can produce further congestion and structural damages, greatly increase costs and maintenance, and reduce the values and functions of the highway.

Encroachment of incompatible uses and designs can also be highly detrimental to the Key West Historical Preservation District. The value of the District to current and future tourism are incalculable especially during the Bicentennial celebration when it can be expected to be a major attraction. Inadequate criteria for protection of the District present a serious problem as does the lack of a clear plan providing incentive and enforcement for the protection and rehabilitation of the area. Deterioration can devalue the lands of downtown Key West and offset potential gains from development of the excess Naval properties. There is also the potential of discouraging the voluntary rehabilitators and the low space/high revenue shops (e.g. art galleries, jewelry and craft shops) which already exist and flourish in and around the District.

The final encroachment problem is incompatible land uses. A recently appealed permit to place five 16 story high-rise buildings adjacent to single family homes is a case in point. There is nothing inherently wrong with high-rise buildings. In fact, when well-planned with adequate provision for landscaping, setbacks and regulated density, they can act to reduce public facility costs and promote large attractive open spaces. Without such provisions, high-rises can become eyesores, foster overcrowding of land and facilities, reduce surrounding property values, and present wind and fire dangers. There is some question as to whether the minimum standards of the existing zoning codes can provide the protection for high-rises, surrounding uses, and public facilities.

The most severe problem created by rapid and uncoordinated growth is development which is improperly phased with the availability of public facilities needed to protect public health and welfare. Improperly phased development can overburden existing facilities and constantly increase the cost for the design and construction of proposed facilities. Further, such unanticipated and uncoordinated development can greatly increase operating costs, reduce operating effectiveness and increase the taxes and fees imposed on existing populations.

The deficit in the provision of public facilities, notably water, sewer, and solid waste can be seen from an historical vantage point in the discussion in the beginning of this section. It is unfortunately true that this deficit has actually worsened during the last five years and additional problems have arisen in transportation and fire prevention.

The water supply situation became so critical that the State Division of Health issued a corrective order in June of 1974 including a moratorium on water hookups. The order cited inadequate supply, low pressure, low storage capacity and possible water contamination. In August, the permit issuing authority was delegated to the Florida Keys Aqueduct Authority which elected to continue the ban.

In September, 1974, the Central and South Florida Flood Control District granted the Florida Keys Aqueduct Authority a permit to increase its withdrawal from the South Dade wellfield. The total annual allocation of 13.5 mgd is a prorated increase from the existing 6.5 mgd to 10 mgd in 1977, 11 mgd in 1978, 11.5 mgd in 1979 and 12.0 mgd in 1980. The balance of the 13.5 will be prorated annually up to 1984, the expiration date of the permit. Extensive data and lengthy testimony from public hearings were analyzed by the district staff prior to the issuance of the permit. The extraction limitations and the prorated allocations approved by the Governing Board recognized that water could be a limiting factor of growth. The final decision basically provides for additional water to meet the existing, compelling shortage and allows for conservative growth over the next ten years.

The construction of a larger pipeline parallel to the existing aqueduct and the increased water allocation will relieve many of the Keys' water problems. It will, however, require several years and a construction cost of more than 35 million dollars to install. Water prices in the Keys are already higher than any other part of the state or Nation, averaging over $3.00/1,000 gallons. If uncoordinated development continues, the new water system could be overwhelmed or totally committed before the end of the ten year period or even before the new pipeline can be completed. This situation could result in even higher water prices. Furthermore, demands for hydrants to reduce fire hazards and improve fire protection have begun in the Keys, and will continue to grow as fire insurance costs increase. As wastewater treatment systems are installed, the need for water to transport sewage will further increase demands on the water supply.

Fire protection, solid waste and wastewater control facilities are the other three major areas of the public facilities deficit. While the fire departments of the Keys meet minimum national manpower standards, they are all volunteer units (except Key West) and have much larger service districts than those used in establishing the national standards. They often have 10 to 15 year old equipment which is ill-suited or inadequate for use on new high-rise buildings. Furthermore, there are no adequate fire hydrant or fire alarm systems. Draught pumps from the shoreline or boreholes are used when available but older equipment, long distances and salt water corrosion have produced equipment failures in two recent cases, one resulting in over 10 thousand dollars in damages. These factors, combined with long response times, give the Keys very low fire insurance ratings. Key West has a 6 rating and the rest of the Keys a 9AA or 10, the lowest rating possible in the national public fire protection system.

Adequate public sewers and waste treatment plants are non-existent in the Keys. Approximately 80% of the population in the unincorporated areas of the Florida Keys utilize septic tanks for sewage treatment. Geologic and topographic aspects of the Florida Keys, such as highly porous substrata and high water tables, adversely affect the ability of septic tanks to provide proper treatment of sewage. The limestone substrata allows for the efficient disposal of effluent; however, it does not provide the degree of filtering which is necessary for the proper treatment of the effluent. Existing regulations reflect restrictions for areas with low percolation rates with no restrictions for highly porous (high percolation rate) areas. Although fecal coliforms may be reduced to non-hazardous levels upon contact with saltwater, they are not the only pollutant which may be generated by septic tanks.

There are approximately 200 private package plants in the Keys with 73% of these plants treating less than 25 thousand gallons per day. Plants of this size are by their nature, less efficient than larger plants. This coupled with the existing lack of qualified operators creates problems for obtaining proper treatment through small private package plants. Since January 1973, the Department of Pollution Control has issued 76 citations for improper treatment among the private plants. In addition, other plants have received verbal warnings. The sewage facilities of Key West are under citation from federal and state pollution control agencies. At the present time the City of Key West collects 4.8 mgd of sewage and pumps it untreated into the Gulf Stream. Key West is in the planning and design stages for the construction of a wastewater collection and treatment system. Monroe County is considering similar action since they are totally without public systems. A very conservative estimate for the capital costs for collection and treatment facilities of the two systems is greater than 21.5 million dollars. This cost for the treatment of 10 mgd of sewage is far higher than for similar sewage loads on the mainland. If development continues at its current rate and pattern, the cost of providing wastewater treatment will increase significantly.

The treatment and disposal of solid waste is also inadequate. All of the sanitary landfill sites in Monroe County are under citation from the Department of Pollution Control because of dump fires, inadequate cover or water quality violations. Only about half of the population receives waste collection services, despite a mandatory county wide solid waste service ordinance. The back roads and even the highways of the Keys clearly reveal where the rest of the trash has gone. Many illegal dumps exist and even septic tank sludge has been placed in them. In September, 1974, the county authorized such sludge dumping for the first time in one landfill site. Where all previous sludge dumping took place is unknown. The County Waste Collection and Disposal District Board would like to correct these situations but face major problems due to the unsuitability of local conditions for solid waste disposal. Capital costs for a new solid waste disposal system are conservatively estimated at 3.5 million dollars. Nearly 1 million dollars annually will be required for its operation and maintenance.

Property damages and loss of lives as a result of hurricane winds and flooding constitutes a significant threat in the Florida Keys. The 1935 hurricane, which hit lower Matecumbe Key, created a storm surge of 18 feet and killed 400 people. Hurricane Donna in 1960 caused over 30 million dollars damage. Recognizing the new development in Marathon which has occurred since 1960, a similar storm today would result in damages greater than 100 million dollars. Inadequate emergency preparedness plans and uncoordinated development in low-lying areas endanger public safety and increase damages resulting from future hurricanes.

Rapid development in the Keys was not accompanied by recognition of the costs of such growth. Many other local and state governments have failed to appreciate the costs of uncoordinated development. Using data from the Florida Department of Revenue, researcher Helen P. Bird recently compared high growth and stable growth counties in Florida. The study revealed that counties which had sustained 400+% population increases from 1950 to 1970 experienced a 1250+% increase in tax rates from 1950 to 1970. For the same period, counties with stable population or stable low growth experienced only a 500% increase in tax rates. Moreover, those counties which experienced the rapid growth were unable to overcome public facilities and services deficits despite these large increases.

In studies at the University of Colorado, economist Eric Johnson found that a clear relationship has existed over time between per capita expenditures and revenues, and that this relationship is modified by the size of the city. He found that as the population of the community approaches 75,000 people, the gap between public revenues and expenditures grows exponentially. This relationship is graphically represented in Figure II-2.

In such situations, communities will generally raise taxes assuming that the added growth-produced revenues will allow them to reduce their facilities deficits. They find instead, that the increased costs of growth consume revenues at an even higher rate. Due to greater use rates, maintenance of existing facilities becomes more difficult and facilities deficits increase. The time lags required in facilities construction, especially in an inflationary period, simply aggravates this situation.

MUNICIPAL COSTS AND REVENUES AS A FUNCTION OF POPULATION

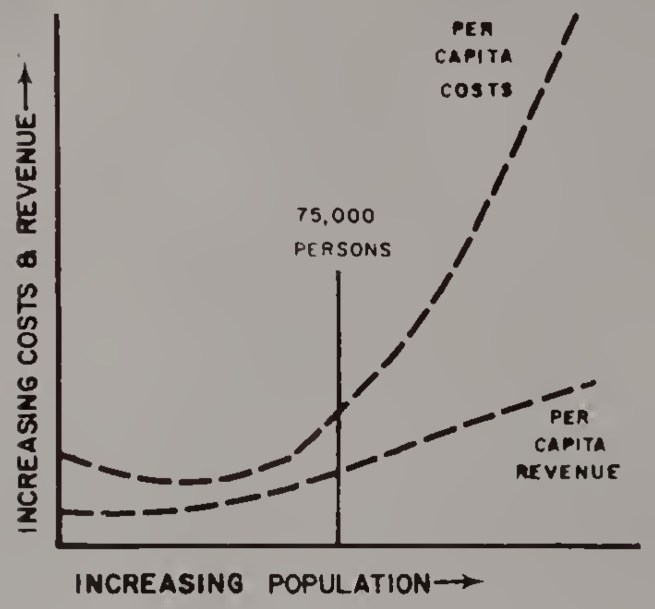


Figure II— 2

The problems of the Florida Keys are not simply a catalogue of existing adverse conditions. The actual growth rate of 2.4% annually since 1970 is only part of the story. A major future problem is the precommitted growth of the past 2-3 years (refer to Figure II-1). As an example of precommitted growth, this report will use only the number of building permits issued for the first 8 months of 1974, a total of 3,642 permits. At an accepted rate of 2.8 persons per household, the development approved during this short period has the potential to bring 10,198 new residents into the County within the next 2-5 years. This is an increase of 18% over the existing permanent population and will be equal to the 1985 to 1990 population projection in Section I. It should be remembered that the figure of 10,000 new residents for the Keys represents only precommitted development from January to August of 1974 and includes no earlier or future growth commitments.

The Committee on Governmental Operations of the Florida House of Representatives prepared a report, The Costs of Growth for the 1974 Legislative Session. That report calculated that "an extremely conservative estimate" of the cost of providing only basic services to a single new resident was $367.68 in 1970. For 10,000 new residents, the cost, according to the Committee's calculations, would be $3,676,800. This figure does not include the cost of new medical facilities or new streets and highways required by a resident, nor does it reflect the inflation rate since 1970 of 23%. It should also be noted that the Committee's calculations represent statewide average costs and that the Florida Consumer Price Index lists Monroe County as the fifth highest priced county in the state. Costs associated with the provision of facilities for transportation, water, wastewater, and solid waste will be significantly higher for Monroe County than any other portion of the state because of the distances and water crossings involved, and the complete void that currently exists with respect to some of these facilities.

Thus, the most conservative estimates available for the cost of an additional increment of 10,000 new residents in Florida is $4,522,464 in 1974 dollars. For the 10,000 new residents precommitted to the Florida Keys in the first 8 months of 1974, a significantly higher figure could be expected. Such a figure, added to the costs of reducing the deficit of public facilities for the existing population, can severely strain the fiscal stability of the local governments of the Keys. Unless means are found to minimize the per capita costs of new residents, taxes and municipal debts will continue to rise at an increasing rate.

In sum, the major dangers produced by uncoordinated development include: 1) environmental degradation, 2) encroachment of incompatible land uses on essential resources and investments, 3) lack of phasing of development with the ability to provide public facilities and services to existing and proposed populations, and 4) a substantial amount of precommitted growth which will exacerbate all the other problems and dangers. The effects of these problems on the economic and fiscal structure of the area will be severe.

SECTION III

THE ADVANTAGES ACHIEVED FROM DEVELOPING THE KEYS IN A COORDINATED MANNER

In the sensitive Florida Keys system it is vital that a healthy balance between man and nature be maintained. If this equilibrium is upset, it can destroy the integrating relationships between the urban structure, natural resources, and the economy of the Keys. Development coordination must be designed to assure the compatibility of the form, timing and intensity of development. The maintenance of this critical man/nature balance can result in a positive long term effect on the sensitive Keys' economy.

The problems discussed in the preceding section can be solved, but solutions will come neither easily nor overnight. In order to facilitate the efforts toward long term solutions, the Division of State Planning has proposed principles for guiding development aimed at assisting local governments in coordinating future development. The principles are set forth in Section V.

A prime objective of the principles is to strengthen local land use management capabilities. Several principles are designed to respond to this objective. Provisions for land use planning and the integration of land use goals and policies with management procedures such as zoning, are designed to insure the initiation and effective use of planning. The principles request that planning assistance to local governments be provided by the South Florida Regional Planning Council staff in order to relieve local staff deficiencies where they may occur. Adequate land use planning is an essential first step in defining the existing situation and establishing clear criteria on which to base development decisions.

Another of the principles is designed to provide guidance for dealing with the types of development, such as high-rise buildings and other high intensity uses, which can have the most significant effect on the local community and the Florida Keys system. This principle calls for the use of a community impact assessment statement, a relatively new tool, but one that has had some success in other parts of the state and is used by most of the counties in the southeast Florida region. An assessment statement, prepared by the developer, allows local governments to anticipate the demands on land and facilities prior to issuance of a development order, to analyze the costs and benefits to the community of the location and timing of a development and to adequately respond to the special advantages and problems of high intensity uses.

The basic theme of a number of the principles is the maintenance and protection of the values and functions of the environment and natural resources of the Keys. Provisions include protection of native vegetation and scenic vistas from clear cutting that serves no immediate development purpose. Procedures for the protection of water quality from urban runoff and unwise procedures and locations for waste disposal are also suggested. Another such provision defines certain environmentally sensitive areas as needing special protection. Tidal mangrove communities, below the line of the mean of the spring high tides and those mangrove communities which are frontally exposed to the surge of hurricane waves are included with a few tropical hammocks in a low density district. The principle suggests that local governments consider the use of advantageous density credits as an incentive to the preservation of these sensitive areas. Such a system could provide extra density to be applied to development on adjacent lands if environmentally sensitive lands remained undeveloped. The system can work well where ownership is in large parcels and there is little need for property transfer to obtain density credits. In the Keys, where over 51% of the land is held by less than 250 owners, an incentive density credit system could be higly successful in protecting sensitive natural resources.

Some of the most significant concerns of the proposed Principles for Guiding Development are protection of proposed and existing public investments and reduction of the public facilities deficit. Proposed public investments may cost more than a quarter of a billion dollars of state, federal and local money in the next 5 to 10 years simply to meet the demands of the existing and 1985 populations. Maintenance of the value, efficiency and cost effectiveness of public facilities is essential to both environmental protection and future development in the Keys' economy. A major provision of the principles recommends that development orders would be contingent upon the ability of local governments to provide adequate public facilities to the existing and new populations. A period of intensive public facilities construction would also provide local jobs during a time when tight money and inflation is causing private development to be reduced throughout the state. The provision for coordination and phasing of development with the ability to provide public services, in conjunction with the proposed community impact assessment statement, can assure continued efficiency of proposed facilities, reduce cash flow problems in the public investment process, and improve land use management. Another provision of this group of principles is designed to encourage cluster development wherever possible in order to reduce the per unit capital and operating costs and to improve the effectiveness of public facilities. Other principles include protection of the Naval Air Station, airports, and waste disposal areas from intrusion by incompatible land uses which may endanger their functions, economic values, or existence. Recommended provisions would also require water conservation fixtures in new developments to reduce capital and operating costs of water supply and waste water treatment facilities, and protection of public and private investment from fire and flood.

A recommendation calling for the creation of a management and enforcement plan for the Historic Preservation District of Key West will provide a basis for the implementation of Chapter 266, Part IV, Florida Statutes, and for the economic and architectural revitalization of Key West in time to promote the city as a major Bicentennial tourist attraction. The cultural heritage which makes Key West a truly unique American city can improve both the local and regional tourist economy. The Historic Preservation District can also become the tourist and commercial recreation center for the city thus allowing for economic base expansion such as light industry in other parts of the urban area.

The designation as an area of critical state concern, including principles for guiding development set forth in Section V, will not solve all or even most of the problems of the Florida Keys system. The principles will, however, if implemented, provide the basis for local management procedures, reduce the necessary public costs of coping with future growth and protect the resources and public facilities upon which the economy is and will be based.

Finally, it should be stressed that the Florida Keys have not been destroyed; they are still an incomparably beautiful area of Florida and that with proper management they can remain so. The protection of the natural and historical resources and public investments of the Florida Keys is important to the state and the south Florida region because of their productivity and their recreation and tourist value. Yet, just as important is the value of these interrelated resources and investments to the Environment, Urban Structure and Economy of the total Florida Keys system, for it is the Keys system itself which is the unique and critical resource to the state and to the region.

SECTION IV

BOUNDARY RECOMMENDATIONS

In accordance with Chapter 380, Florida Statutes, the Division of State Planning recommends that the boundary discussed within this section of the report and depicted in Figure IV-1, be adopted by the Administration Commission as a definitive boundary for the Florida Keys Area of Critical State Concern. The recommended critical area contains approximately 70,000 acres of land and is located in the Florida Keys region of south Monroe County. Included within the area are the jurisdictions of Key West, Key Colony Beach, and Layton and part of the jurisdiction of Monroe County.

The recommended boundary was chosen after analyzing the geographic areas which are affected by or have an effect upon the resources and public investments of state and regional concern. In sum, the boundary as depicted in Figure IV-1 was chosen because it contains: 1) the unique island chain and its associated aesthetic and scenic values; 2) the mangrove communities whose values and functions are important to the maintenance of the Monroe County urban structure and economy; 3) the area which is directly affected by or has an effect upon the three major public investments: Overseas Highway, Florida Keys Aqueduct Authority water supply system, and municipal and county solid and liquid waste treatment and disposal facilities; 4) the land within the noise and hazard zones adjacent to the Key West Naval Air Station; and 5) the Key West Historical Preservation District.

BOUNDARY DISCUSSION

Those areas located adjacent to and on the mainland north of the proposed Florida Keys Area of Critical State Concern have been excluded for the following reasons: 1) land management practices within the Everglades National Park, Biscayne National Monument, Great White Heron National Wildlife Refuge, Key West National Wildlife Refuge and portions of the National Key Deer Refuge are consistent with or more protective than regulations which may be promulgated as the result of the proposed principles for guiding development, 2) present state policy regarding submerged lands is consistent with the recommended principles, 3) private lands in south Dade County adjacent to Card Sound are not currently receiving development pressure, and 4) the Biscayne Bay Aquatic Preserve offers protection for the mangrove communities of south Dade County.

The offshore areas which contain the major coral reefs were not included because the land use activities which, 1) can be regulated by Chapter 380, Florida Statutes, and 2) may adversely affect the coral reef communities are located within the recommended boundary and will be subject to regulation.

The municipalities of Key Colony Beach, Layton and Key West have been included within the proposed area of critical state concern because they share with the County the same environment and common public facilities, such as roads, bridges, and the pipeline. The demands of city residents on the facilities will be no less than those in the unincorporated areas. Additionally, intensive development pressures may be directed towards areas which are excluded from designation. Therefore, in order to protect the existing management capabilities and maintain their overall relationship to the unincorporated areas of the county, the municipalities have been included.

LEGAL DESCRIPTION

The following area is included within the Florida Keys Area of Critical State Concern:

All lands in Monroe County, except:

1) that portion of Monroe County included within the designated exterior boundaries of the Everglades National Park and areas north of said park; and

2) all lands seaward of mean high water that are owned by local, state or federal governments.

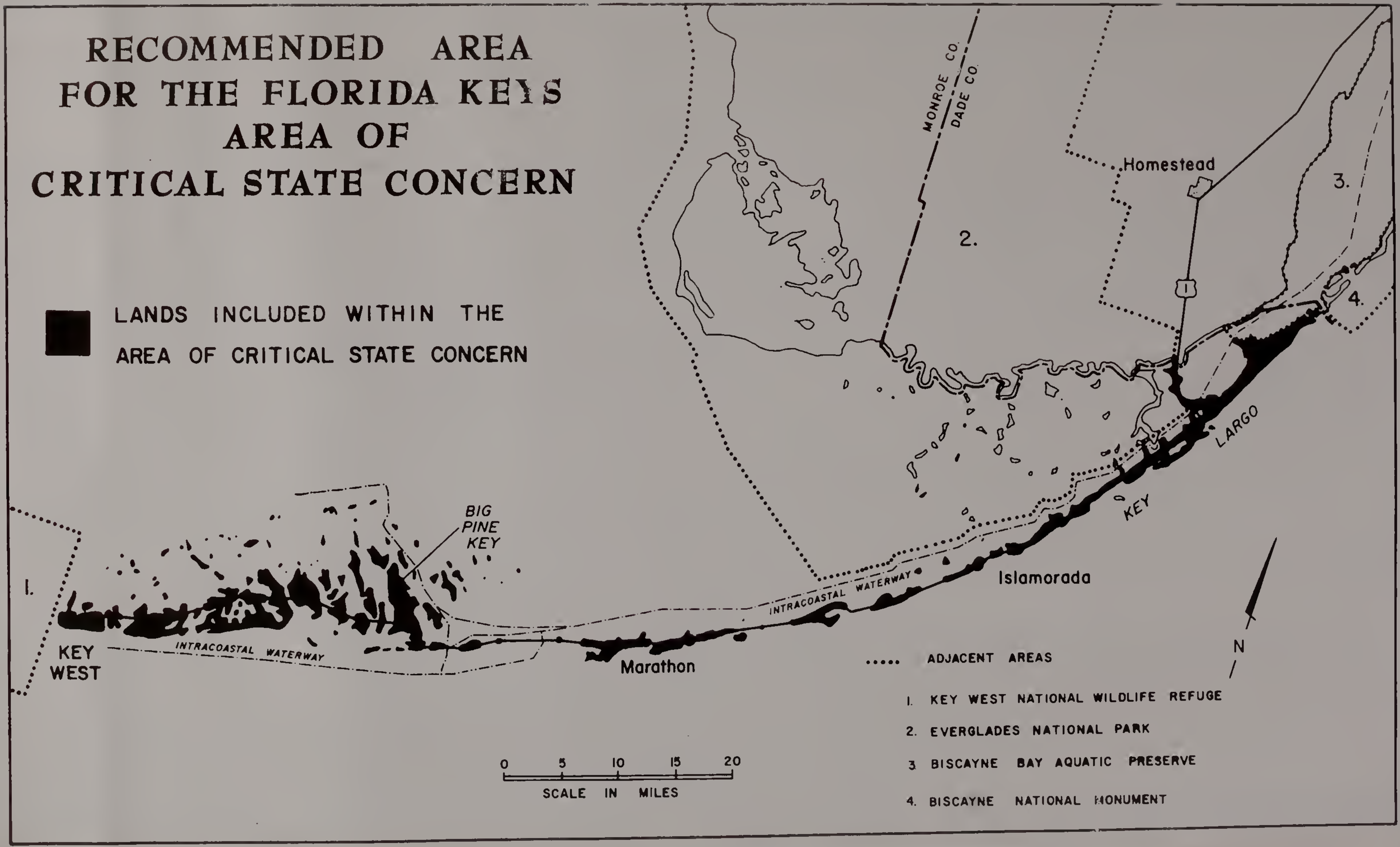

RECOMMENDED AREA
FOR THE FLORIDA KEYS
AREA OF
CRITICAL STATE CONCERN
LANDS INCLUDED WITHIN THE AREA OF CRITICAL STATE CONCERN
MONROE CO.
DADE CO.
Homestead
1
2.
3.
4.
1.
BIG PINE KEY
KEY WEST
INTRACOASTAL WATERWAY
INTRACOASTAL WATERWAY
Marathon
Islamorada
KEY LARGO
N
0 5 10 15 20
SCALE IN MILES
ADJACENT AREAS
1. KEY WEST NATIONAL WILDLIFE REFUGE
2. EVERGLADES NATIONAL PARK
3. BISCAYNE BAY AQUATIC PRESERVE
4. BISCAYNE NATIONAL MONUMENT

Figure IV-1

SECTION V

RECOMMENDED PRINCIPLES FOR GUIDING DEVELOPMENT

Pursuant to Section 380.05, Florida Statutes, the principles outlined in Table V below, for guiding development within the proposed area of critical state concern are recommended for adoption by the Administration Commission by rule pursuant to Chapter 120, Florida Statutes. These principles, when adopted, become the basis for the county and municipalities of the Florida Keys to prepare land development regulations for the designated area of critical state concern. These jurisdictions include Monroe County, City of Key West, City of Key Colony Beach and the City of Layton. The recommended principles, identified in Table V, specify:

I) the objectives to be achieved through the adoption and enforcement of critical area development regulations;

II) a listing of elements requiring regulation and regulatory guidelines related to land development activities which must be considered when preparing regulations; and

III) a general section requesting the assistance of regional agencies in the preparation of local regulations and providing administrative procedures.

When the principles are properly implemented by the adoption and enforcement of regulations, then the advantages of coordinating development in the area of critical state concern, as identified in Section III of this report, should be achieved.

To the extent possible, the Division of State Planning will provide technical assistance to local governments in the preparation of land development regulations for areas of critical state concern.

TABLE V

RECOMMENDED PRINCIPLES FOR GUIDING DEVELOPMENT

I. General Objectives To Be Achieved

1. Strengthen local government capabilities for managing land use and development;

2. Protection of tidal mangroves and associated shoreline and marine resources and wildlife;

3. Minimize the adverse impacts of development on the quality of water in and around the Florida Keys;

4. Protection of scenic resources of the Keys and promotion of the management of unique, tropical vegetation;

5. Protection of the historical heritage of the Florida Keys and the Key West Historical Preservation District;

6. Protection of the value, efficiency, cost-effectiveness and amortized life of existing and proposed major public investments, including:

   a. the Florida Keys Aqueduct and water supply facilities

   b. sewage collection and disposal facilities

   c. solid waste collection and disposal facilities

   d. Key West Naval Air Station

   e. repair and replacement of the Overseas Highway bridges and maintenance and expansion of other transportation facilities.

TABLE V (Continued)

RECOMMENDED PRINCIPLES FOR GUIDING DEVELOPMENT

I. General Objectives To Be Achieved

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7. Minimize the adverse impacts of proposed public investments on the natural and environmental resources of the Florida Keys; and

8. Protection of the public health, safety, welfare and economy of the Florida Keys, and the maintenance of the Keys as a unique Florida resource.

II. Elements Requiring Regulation

Planning and Administration

1. Each jurisdiction should adopt a plan and policies for future land use within its boundaries which are consistent with these principles. Such plans and policies should be implemented through zoning ordinances and maps which are kept current and made available for reasonable public distribution and inspection. Development orders should be issued in conformance with the policies and standards of the land use plan and zoning ordinances and maps.

2. Issuance of development orders should be coordinated with and contingent upon the provision of adequate public facilities and services for the existing population and the proposed development.

3. Special zoning districts should be created for:

   a. Environmentally sensitive areas including, without limitation, tidal mangrove communities located seaward of a line representing the mean of the spring high tides. Such areas should be zoned estate residential with a maximum use density of one dwelling unit per acre. Site alteration in these areas should be limited to 10% of the total site size. Density credit should be considered by local governments as an incentive for the preservation of environmentally sensitive areas.

   b. Noise and hazard zones of the Key West Naval Air Station as delineated by the U. S. Navy Office of the Chief of Naval Operations. Development within such zones should be limited to that compatible with air operations. Implementation of this section should be closely coordinated with the Office of the Chief of Naval Operations. Similar districts should be created around civilian airfields in cooperation with the Florida Department of Transportation and the Federal Aviation Administration. Codes for airfield districts should clearly specify height limits for structures and other appropriate restrictions on development necessary to protect air operations and public health and safety.

4. A community impact assessment statement should be submitted and approved prior to the issuance of zoning or rezoning orders or site plan approval for the following developments:

   a. Any development which includes buildings in excess of 45 feet in height;

   b. Any intensive land uses including: residential uses of 10 or more dwelling units per acre or, 50 or more total dwelling units; and

TABLE V (Continued)

RECOMMENDED PRINCIPLES FOR GUIDING DEVELOPMENT

II. Elements Requiring Regulation

Planning and Administration (Continued)

c. business, commercial or industrial uses of 5 or more acres.

Such developments should be encouraged to use clustering and designs which would reduce public facilities costs and improve the scenic quality of the development. In addition, they should conform to appropriate setback and open space requirements, stringent landscaping and land use compatibility requirements, and building and siting requirements to reduce hurricane and fire damage potential and limit and control access to the Overseas Highway.

The community impact statement should be designed to enable local governmental officials to determine the proposed development's favorable or unfavorable impact on the environment, natural resources, economy and the potential of the project to meet local or regional housing needs. The statement should also require information relative to the projects potential impact on public facilities, including without limitation, water, sewer, solid waste disposal and public transportation facilities.

Site Alteration Regulations

1. Site alteration and landscaping regulations should provide for:

   a. A land clearing permit of limited duration issued upon approval of a site plan which includes a natural vegetation map, excepting minimal clearing required for survey.

   b. Limitation of the size and species of trees allowed to be removed in clearing, including reasonable exceptions for structure sites and public safety. The ordinance should provide protection for tropical hammocks in which the predominant tree species are tree cactus or mature tree species characteristic of West Indian tropical hardwood hammocks.

   c. Revegetation and landscaping of cleared sites after construction.

Waste Control and Water Quality Protection

1. The Monroe County Waste Collection and Disposal District, in cooperation with municipal jurisdictions, should establish county-wide criteria and regulations for the methods and location of the disposal of all solid waste and waste water effluents and residuals.

2. Site alteration and subdivision regulations should provide for:

   a. Retention of construction related runoff or discharge of such runoff into adequately sized natural vegetative filtration areas in a manner approximating the natural runoff regime.

   b. Permanent drainage systems which make maximum use of natural drainage patterns, vegetative retention and filtration.

Protection of Public Facilities and Investments

1. The Monroe County Waste Collection and Disposal District, in cooperation with the municipal jurisdictions and the Florida

TABLE V (Continued)

RECOMMENDED PRINCIPLES FOR GUIDING DEVELOPMENT

II. Elements Requiring Regulation

Protection of Public Facilities and Investments (Continued)

Keys Aqueduct Authority, should amend all applicable plumbing codes to provide for the mandatory installation of water conserving fixtures in all new development and redevelopment.

2. Business, commercial and industrial development adjacent to the Overseas Highway should provide off street parking, service roads and limited controlled access points to the Highway. Except in case of extreme hardship, highway access from any development within 250 feet of a bridge or bridge ramp should be prohibited.

3. Existing and future waste treatment and disposal sites should be protected from encroachment by land uses which would endanger their functions or existence.

Historical Resource Protection

1. A management and enforcement plan and ordinance should be adopted by the City of Key West providing that designs and uses of development and reconstruction within the Key West Historical Preservation District shall be compatible with the existing unique architectural styles and shall protect the historical values of the District.

III. General

1. The above guidelines are oriented towards protection of natural and historical resources and public investments of regional and state importance. The regulations developed pursuant to these principles should be:

   a. Performance oriented to maximize design flexibility.

   b. Supplementary and complementary to existing county and municipal land use regulations.

   c. Administered by the appropriate local governmental jurisdictions in the same manner as local ordinances and codes.

2. The South Florida Regional Planning Council is hereby requested to offer technical assistance to the local jurisdictions in preparing land development regulations consistent with these principles.

SECTION VI

POSTSCRIPT: SIGNIFICANT POINTS OF CLARIFICATION

Throughout the Division's study of the Florida Keys as an Area of Critical State Concern, a number of similar questions have consistently arisen. Some result from confusion between the Division of State Planning's report and reports of other agencies and organizations. Additional questions relate to the implementation of regulations promulgated within an area of critical state concern and the effect of these regulations upon the local tax base. These questions require a response from the Division.

First, regarding the Division's Area of Critical State Concern Report and the Coastal Coordinating Council's Florida Keys Coastal Zone Management Study, the Division intensively considered the information collected by the Coastal Coordinating Council (CCC) and expanded the investigation into additional areas. The findings and conclusions of the two reports are very consistent; however, the management approaches and techniques differ. For example, the CCC groups the land area of the Keys into three major planning categories: Preservation (44.9% of the Keys' land area), Conservation (26.5%) and Development (28.6%). The Division of State Planning does not employ these categories or the related management recommendations; however, we recognize the value that these categories can have in guiding local decision makers on land use management questions and in developing broad land use planning approaches.

~~Second,~~ the implementation and administration of critical area principles and regulations are not a "state takeover of local land use management" but rather a working relationship between state and local governments to provide effective protection for resources and public investments in which the state and the region have significant interests. If the Florida Keys become an area of critical state concern, local governments have six months to prepare local ordinances or regulations specifically implementing the objectives and principles outlined in the critical area report. During this period, the Division of State Planning will provide technical assistance at the request of the local governments. If at the end of the six month period, local governments have not developed such regulations, or the regulations developed do not adequately reflect the objectives and principles, then the Division of State Planning is required to develop the regulations. In either case, the local government is responsible for the implementation and enforcement of the regulations. There is no additional state permitting system established for the critical area.

The Division of State Planning will, however, receive copies of all development orders issued within the critical area. These orders will be reviewed, and if an order is not consistent with the critical area regulations, it may be appealed to the Governor and Cabinet, acting as the Land and Water Adjudicatory Commission.

Third, the designation of the Florida Keys as an Area of Critical State Concern will not adversely affect the tax base structure of Monroe County. Property taxes presently constitute approximately 32% of the combined county and municipal tax structure for the Keys. Regulations adopted pursuant to Chapter 380 must meet the same constitutional standards as local zoning and subdivision regulations. As such, these regulations are subject to the same judicial review as any other local ordinance. Moreover, just as with local zoning, any reduction in assessed value of particular property, at a minimum, should be offset by increases in surrounding property values caused by market demands. However, if a landowner believes that critical area regulations have reduced the assessed value of the property, a re-assessment may be requested. Such a procedure is provided by Chapter 74-234, Laws of Florida.

Finally, it is significant to emphasize that Section 380.05(15), Florida Statutes, implicitly protects landowners' rights that have vested pursuant to recognized principles of equitable estoppel and related doctrines. Hence, existing and certain on-going development projects are specifically exempted from the impact of critical area regulations.

APPENDIX A

SUMMARY OF THE FLORIDA ENVIRONMENTAL LAND AND WATER MANAGEMENT ACT OF 1972, SECTION 380.05, FLORIDA STATUTES, "AREAS OF CRITICAL STATE CONCERN"

The Environmental Land and Water Management Act of 1972, Chapter 380, Florida Statutes, established a method for designating areas of critical state concern.

The Act states that the Division of State Planning "...may from time to time recommend to the Administration Commission, specific areas of critical state concern." This recommendation is to include principles formulated for each such area which will guide development in a proper manner. Areas for consideration may be suggested by public agencies, private organizations, or even individual citizens. Each must be carefully considered by the Division, since not more than 5% of the State's land (approximately 1.8 million acres) may be designated as critical under the Act.

The three criteria outlined by the Act for designating a critical area are that it must:

(a) contain, or have a significant impact upon, environmental, historical, natural, or archaeological resources of regional or statewide importance; or

(b) be significantly affected by, or have a significant effect upon, an existing or proposed major public facility or other area of major public investment; or,

(c) be of major development potential as defined in the State Land Development Plan.

The recommendations of the Division of State Planning must be submitted to the Administration Commission, accompanied by the following documentation:

(a) the boundaries of the proposed area;

(b) the reasons why the proposed area is of critical concern to the state or region;

(c) the dangers that would result from uncontrolled or inadequate development of the area;

(d) the advantages that would be achieved from the development of the area in a coordinated manner; and,

(e) the specific recommended principles for guiding the development of the area.

A decision must be made by the Commission within 45 days of submission; those areas which are adopted become "Areas of Critical State Concern." Local governments with jurisdiction over an area so designated are given six months to formulate development regulations which will implement the State principles. The local government then becomes responsible for administering these regulations. In the event that a local government fails to act, the State government is required to implement the regulations itself.

Among the other significant provisions of the Act is the empowerment of the State to adopt guidelines and standards for deciding whether particular land development (such as airports, power plants, and shopping centers) are "developments of regional impact." Facilities so designated are subject to public hearings and the submission of regional impact statements whenever plans are made to build, modify, or expand them. The Act also created two new entities: the Environmental Land Management Study

Committee, a temporary body to advise the Division of State Planning, to study all facets of land resource management, and recommend additional legislation; and the Land and Water Adjudicatory Commission to act on appeals in matters relevant to both Areas of Critical State Concern and Developments of Regional Impact. A copy of the full text of the Act can be obtained from the Bureau of Land and Water Management, Division of State Planning, Florida Department of Administration, 660 Apalachee Parkway, Tallahassee, Florida 32304.

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